THE JOURNAL OF SPEECH AND HEARING DISORDERS

Volume 16 December 1951 Number 4

Twenty-Seventh Annual Conference 307

Proposal for Revision of the Constitution of the American Speech and Hearing Association 313

Measuring the Severity of Stuttering
DON LEWIS and DOROTHY SHERMAN 320

A Consideration of Thiamin Supplement in Prevention of Stuttering in Preschool Children
LESTER L. HALE 327

Stuttering of Different Types in Identical Twins
FRIEDRICH S. BRODNITZ 334

Therapy for Speech Deficiencies Resulting from Acute Bulbar Poliomyelitis Infection
ELMER E. BAKER, JR. and MARTIN A. SOKOLOFF 337

A Preliminary Investigation of the Ear-Choice Technique in Threshold Audiometry
E. THAYER CURRY and GEORGE H. KURTZROCK 340

Time-Patterns of Speech in Normal Subjects. II
MARCEL VERZEANO 346

Speech Disorders Among European Military Personnel in World War I: Part 1
HARLAN BLOOMER and HIDE SHOHARA 351

Graduate Theses in Speech and Hearing Disorders—1950
FRANKLIN H. KNOWER 367

Letter to the Editor 375

Book Reviews, 377 Abstracts, 383

News and Announcements, 390

Index to Volume 16, 396

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NOTICE TO AUTHORS

Before submitting manuscripts for publication authors should consult Information for Contributors to the Journal of Speech and Hearing Disorders, *JSHD*, 14, 1949, 93-94. Prospective authors are invited to write the Editor for copies of this Note, and of its supplement, Examples of Manuscript Form.

TWENTY-SEVENTH ANNUAL CONFERENCE

December 27-29, 1951, Stevens Hotel, Chicago

AMERICAN SPEECH AND HEARING ASSOCIATION

Preliminary Announcement of Program

Wednesday, December 26
(pre-convention)

9:00 a.m. Meeting of Executive Council

7:30 p.m. Meeting of Executive Council

Thursday, December 27
GENERAL SESSION
Presiding: Harlan Bloomer, University of Michigan
Vice-President of ASHA

9:00 a.m. *Informal Assembly of Members*

9:45 a.m. *Formal Assembly*

10:00 a.m. *Presidential Address.* Mack D. Steer, Purdue University, President of ASHA

10:30 a.m. Adjournment

APHASIA
Chairman: Hildred Schuell, Minneapolis VA Hospital and
Division of Neurology, University of Minnesota

10:40 a.m. *Upper Limits of Therapy with Aphasic Patients.* Marion Knight, University of Michigan

10:55 a.m. *Group Therapy with Relatives of Aphasic Patients.* Martha Turnblom, New York University—Bellevue Medical Center

11:10 a.m. *Localization of Speech in the Cerebral Cortex.* Lamar Roberts, Montreal Neurological Institute, McGill University

11:30 a.m. *Research Needs in Aphasia.* Charles R. Strother, University of Washington

11:50 a.m. *Summary and Discussion.* Joseph M. Wepman, University of Chicago

12:10 p.m. Adjournment

CLINICAL AUDIOLOGY
(Joint meeting with SAA)
Chairman: Leo G. Doerfler, University of Pittsburgh

10:40 a.m. *A Preliminary Study of the Effect of Noise on Thresholds for Speech.* Kinsey M. Simonton and L. D. Hedgecock, Mayo Clinic

10:55 a.m. Discussion

11:00 a.m. *A Test to Determine the Phase Relations between the Fenestra and Round Window.* I. Shore, Central Institute for the Deaf

11:15 a.m. Discussion

11:20 a.m. *Improved Clinical Galvanic Skin Response Instrumentation.* K. Stewart, University of Pittsburgh

11:35 a.m. Discussion

11:40 a.m. *Formulation of a Diagnostic Word Test of Hearing.* Bruce Siegenthaler, Pennsylvania State College

11:55 a.m. Discussion

12:10 p.m. Adjournment

12:15-2:00 p.m. ALUMNI LUNCHEONS

PANEL DISCUSSION: CRUCIAL PROBLEMS IN THE ADMINISTRATION OF PUBLIC SCHOOL SPEECH CORRECTION PROGRAMS

(Joint meeting with SAA)

Chairman: Margaret E. Hall, Chicago Public Schools

2:10 p.m. *Problem 1. The Most Effective Use of a Limited Therapy Staff*
Panel Members: Margaret McCausland, School District of Philadelphia
Miriam Keslar, Los Angeles Public Schools
Gretchen M. Phair, Wisconsin State Department of Public Instruction

2:55 p.m. *Problem 2. Induction, In-service Training and Guidance of New Speech Correction Teachers*
Panel Members: Elvena Miller, Seattle Public Schools
Mary A. Blair, Michigan Department of Public Instruction
Martha E. Black, Illinois Department of Public Instruction

3:40 p.m. Adjournment

RESEARCH IN SPEECH PATHOLOGY

Chairman: G. Paul Moore, Northwestern University

2:10 p.m. *Demonstration of the Speech Articulators in Action* (Sound film and commentary). William G. Hardy and Miriam D. Pauls, The Johns Hopkins Hospital

2:25 p.m. *Developmental Problems of Speech Retarded Children.* Richard L. Schiefelbusch, University of Kansas

2:40 p.m. *The Use of Blood Examinations in the Diagnosis and Treatment of Stuttering and other Speech Disorders.* Herbert C. Weller, Toledo Speech Clinic

2:55 p.m. *An Analysis of Consonant Substitution and Omission in Oral Reading and Propositional Speech.* Dean Williams, Florida State University

3:10 p.m. *Cine-fluoroscopic Views of Normal Velar Function.* James A. Carrell, University of Washington

3:25 p.m. Discussion

3:40 p.m. Adjournment

SPEECH AND LANGUAGE FOR THE DEAF

Chairman: S. Richard Silverman, Central Institute for the Deaf

3:50 p.m. *An Investigation of the Spontaneous Speech Sounds of Five-year-old Deaf-born Children.* Josephine Carr, Iowa School for the Deaf

4:05 p.m. Discussion

4:10 p.m. *Relationship of Hearing Loss and Speech Sounds Occurring in the Spontaneous Vocalization of Five-year-old Deaf-born Children.* Loida Farrow, College of the Pacific

4:25 p.m. Discussion

4:30 p.m. *Motivating Speech for the Intermediate-school Deaf Child.* Alice Kent, East Cleveland School for the Deaf

4:45 p.m. Discussion

4:50 p.m. *A Program of Speech Development and Correction for Deaf Children.* Jacqueline Keaster, State University of Iowa

5:05 p.m. Discussion

5:20 p.m. Adjournment

PANEL DISCUSSION: THERAPY FOR VOICE DISORDERS

Chairman: Wilbert Pronovost, Boston University

3:50 p.m. Panel Members: Virgil Anderson, Stanford University
Grant Fairbanks, University of Illinois
Paul Moore, Northwestern University
Henry Moser, Ohio State University

5:20 p.m. Adjournment

8:00-10:00 p.m. BUSINESS MEETING OF ASHA MEMBERSHIP

8:00-9:00 p.m. Sigma Alpha Eta National Council Meeting

Friday, December 28

VOICE COMMUNICATION IN MILITARY APPLICATIONS
(Joint Meeting with SAA)

Chairman: John W. Black, The Ohio State University

9:00 a.m. *Speech Research Needs in Naval Aviation.* Rear Admiral Bertram Groesbeck, Jr., MC, USN, Bureau of Medicine and Surgery, Department of the Navy

9:30 a.m. *USAF Research Requirements in the Field of Voice Communication.* Lt. Col. Ike H. Harrison, USAF, Human Resources Division, Directorate of Research and Development

10:00 a.m. *Research Problems in Submarine Voice Communication.* Captain C. W. Shilling, MC, USN, Office of Naval Research, and Research Division, Bureau of Medicine and Surgery

10:30 a.m. Adjournment

9:00 a.m. FILM THEATRE
Chairman: Jesse J. Villarreal, University of Texas

SPEECH PATHOLOGIES OF NEUROLOGICAL ORIGIN

Chairman: Frederic Darley, State University of Iowa

10:40 a.m. *Objective Evaluation of Cerebral Palsied Patients.* Spencer F. Brown, University of Minnesota

11:00 a.m. *Aspects of Cerebral Palsy Speech Therapy.* Meyer A. Perlstein, National Society for Crippled Children and Adults, Inc.

11:20 a.m. *Congenital Aphasia: A Case Report.* George W. Gens, Newark State Teachers College, and M. Lois Bibey, Pennsylvania State College

11:40 a.m. *An Anatomical and Physiological Approach to Congenital Aphasia.* Oscar Sugar, University of Illinois

11:55 a.m. Discussion

12:10 p.m. Adjournment.

TRAINING OF SPEECH CORRECTIONISTS

Chairman: Stanley H. Ainsworth, Florida State University

10:40 a.m. *Supervision of Student Clinicians.* Paul Moore, Northwestern University

10:55 a.m. Discussion Panel

11:10 a.m. *Curriculum Problems.* Duane C. Spriestersbach, State University of Iowa

11:25 a.m. Discussion Panel

11:40 a.m. *Delimitation of the Functions of the Speech Correctionist.* Claude Kantner, Ohio University

11:55 a.m. Discussion Panel

12:10 p.m. Adjournment

12:15-2:00 p.m. JOINT LUNCHEON OF ALL ASSOCIATIONS

PANEL DISCUSSION: WHAT I DO FOR THE STUTTERER IN THE PUBLIC SCHOOLS AND WHAT I WOULD LIKE TO DO

Chairman: Leon Lassers, San Francisco State College

2:10 p.m. Panel Members: Margaret E. Hall, Chicago Public Schools
Myfanwy Chapman, Minneapolis Public Schools
Thelma Knudson, South Bend, Indiana, Public Schools
Ollie Backus, University of Alabama

3:40 p.m. Adjournment

2:10 p.m. FILM THEATRE

Chairman: Jesse J. Villarreal, University of Texas

PANEL ON INFORMATION THEORY
(Joint Meeting with SAA)

Chairman: James Curtis, State University of Iowa

2:10 p.m. *Information Theory to 1951—A Non-Technical Review.* Warren Weaver, Rockefeller Foundation
2:35 p.m. *Applications of Information Theory to Research in Experimental Phonetics.* Gordon E. Peterson, Bell Telephone Laboratories
2:55 p.m. *Applications of Information Theory to Research in Hearing.* Hallowell Davis, Central Institute for the Deaf
3:15 p.m. Discussion
3:40 p.m. Adjournment

THE PROCESS OF GROUP THERAPY

Chairman: John N. Clancy, University of Michigan

3:50 p.m. *Investigations in Intensive Speech Therapy.* Ollie Backus, University of Alabama
4:10 p.m. Discussion
4:20 p.m. *Investigations with Children Who Stutter.* Lester Harris, Whittier College
4:40 p.m. Discussion
4:50 p.m. *Investigations in Client-Centered Psychotherapy.* John M. Shlien, University of Chicago
5:10 p.m. Discussion
5:20 p.m. Adjournment

STRUCTURAL ABNORMALITIES AFFECTING SPEECH

Chairman: Frank Robinson, The Ohio State University

3:50 p.m. *Cortical Functioning in Hemiplegics.* Phil Hood, Northwestern University
4:05 p.m. *A Study of Air Use by Cleft Palate Speakers.* Rolland J. Van Hattum, Pennsylvania State College
4:20 p.m. *Observations on Palatopharyngeal Action with Special Reference to Speech, Swallowing and Blowing.* Harlan Bloomer, University of Michigan
4:35 p.m. *An X-ray Study of Cleft Palate Oral and Pharyngeal Structures and Their Function During Vowel Phonation.* McKenzie W. Buck, State University of Iowa
4:50 p.m. *An Audiologic and Otorhinologic Evaluation of Cleft Lip and Cleft Palate Cases.* Murray M. Halfond, School of Medicine, Duke University
5:05 p.m. Discussion
5:20 p.m. Adjournment

7:00 p.m. Meeting of Executive Council

7:00 p.m. FILM THEATRE
Chairman: Jesse J. Villarreal, University of Texas

7:30 p.m. MEETING OF SUPERVISORS OF PUBLIC SCHOOL SPEECH CORRECTION
Chairman: Margaret McCausland, Philadelphia Public Schools

8:00 p.m. Sigma Alpha Eta General Assembly

Saturday, December 29

PANEL DISCUSSION: SPEECH DEVELOPMENT IN THE INFANT AND YOUNG CHILD

Chairman: George J. Wischner, University of Illinois

9:00 a.m. Panel Members: Orvis C. Irwin, State University of Iowa
O. Hobart Mowrer, University of Illinois
Mildred C. Templin, University of Minnesota

10:30 a.m. Adjournment

EXPERIMENTAL PHONETICS

Chairman: John V. Irwin, University of Wisconsin

9:00 a.m. *Intensity Level Measurements of Monitored Words in Speech Reception Tests.* Frances Patton and T. D. Hanley, Purdue University

9:10 a.m. *Accompaniments of Word Intelligibility.* John Black, Ohio State University

9:20 a.m. *An Analysis of Articulation as a Function of Delayed Feedback.* Grant Fairbanks and Newman Guttman, University of Illinois

9:30 a.m. *The Influence of Consonantal Environment Upon the Acoustical Characteristics of Vowels.* Arthur S. House, University of Illinois

9:42 a.m. *Vowel Recognition as a Function of Duration Frequency Modulation and Phonetic Context.* William R. Tiffany, University of Washington

9:54 a.m. *The Influence of Vowels on Recognition of Adjacent Consonants.* Dorothy Sherman, State University of Iowa

10:06 a.m. Discussion

10:30 a.m. Adjournment

RESEARCH IN AUDIOLOGY

Chairman: Raymond Carhart, Northwestern University

10:40 a.m. *Problems in the Analysis of Sensory Function.* I. T. Diamond and W. D. Neff, University of Chicago

10:55 a.m. Discussion

11:00 a.m. *Research in Audiology at the Navy Electronics Laboratory.* J. C. Webster and A. M. Small, Human Factors Division, Navy Electronics Laboratory

11:15 a.m. Discussion

11:20 a.m. *Audiometric Comparisons of Mental Defectives and General Populations: Report of a Survey.* J. Matthews and J. W. Birch, University of Pittsburgh

11:40 a.m. Discussion

12:10 p.m. Adjournment

IMPLICATIONS OF CURRENT RESEARCH FOR PUBLIC SCHOOL SPEECH CORRECTION

(Joint Meeting with SAA)

Chairman: Duane C. Spriestersbach, State University of Iowa

10:40 a.m. *The Implications of Learning Research to the Problem of Acquisition of Speech Sounds.* Jack Matthews, University of Pittsburgh

11:05 a.m. *The Relevance to Diagnosis and Therapy of the Measurement of Various Dimensions of Language Development.* Frederic L. Darley, State University of Iowa
11:30 a.m. *Factors Affecting the Reliability of Phonetic Analysis.* Eugene T. McDonald, Pennsylvania State College
11:55 a.m. Discussion
12:10 p.m. Adjournment

1:15-2:00 p.m. BUSINESS MEETING OF ASHA MEMBERSHIP

PERSONALITY DEVELOPMENT AND SPEECH THERAPY

Chairman: Gordon Low, University of Minnesota

2:10 p.m. *Indications of a Trend Toward a Closer Integration of Personality Development and Speech Therapy.* Boyd Sheets, University of Utah
2:25 p.m. *Description of a Program in which there is an Attempt to Achieve Closer Integration of Personality Development and Speech Therapy.* Jane Beasley, University of Alabama
2:40 p.m. *Possible Deterrents to a Closer Integration of Personality Development and Speech Therapy.* Paul Ptacek, University of Minnesota
2:55 p.m. *Possibilities of Personality Training in Speech Therapy.* Wendell Johnson, State University of Iowa
3:10 p.m. Discussion
3:40 p.m. Adjournment

GROUP DISCUSSIONS OF SPECIAL TOPICS

Sponsor: George J. Wischner, University of Illinois

2:10 p.m. Speech Pathology. Speech Science. Audiology
(Discussion leaders to be announced)

3:50 p.m. FILM THEATRE
Chairman: Jesse J. Villarreal, University of Texas

3:50 p.m. Executive Council Meeting

PROPOSAL FOR REVISION *of the* CONSTITUTION *of the* AMERICAN SPEECH AND HEARING ASSOCIATION

IN AUGUST, the Committee on Constitutional Revision, consisting of Elaine Pagel Paden, Chairman, Mary W. Huber, George A. Kopp and Martin F. Palmer, made a preliminary report to President Steer. Reviewing its activities, it reported that:

> As a preliminary step, constitutions and by-laws of other organizations similar to ASHA, as well as standard authors on parliamentary law, were consulted. The Committee's first recommendation was that, in keeping with the practice of incorporated organizations, the Association be governed by By-Laws only. Such a document would have the advantages of being less complicated in form and less cumbersome to change. This recommendation was submitted to the Executive Council and approved.

The major portion of the report was a draft of the new By-Laws, which the Editor, by vote of the Executive Council, has been directed to publish so that all Members may have opportunity to study it before the annual Business Meeting. Members are urged to send suggestions and criticisms to President Steer. The following excerpts from the report facilitate interpretation:

> The Committee then proceeded to draw up a series of tentative drafts of the new By-Laws. These were based upon careful review of previous constitutions of ASHA and actions taken in Council and Business meetings over the last several years. . . Study was also made of internal organization and consistency, and By-Laws of such organizations as the Speech Association of America, American Psychological Association, and Acoustical Society of America were consulted for possible suggestions for improvement. . . .
>
> By definition, the Constitution or By-Laws of an organization is a 'statement of basic principles and structure of the organization.' It has been the purpose of the Committee to prepare a set of By-Laws which are truly basic to the government of the Association. Effort has been made to pare away all details of operating procedure which are not primary to its operation. . . . The great majority of amendments in the past have been concerned with operating detail, and would have been unnecessary had the Constitution been concerned with more fundamental principles.
>
> The proposed draft here enclosed has been changed from previous Constitutions largely in the matter of organization, economy of wording, and restriction to those principles of government which will remain unchanged over long periods. There are very few actual changes in principle proposed, and since these might be rather difficult to identify with the change in form, they are listed separately. Other details remain as in previous years. . . .

Major Changes from 1950 Revision of ASHA Constitution

1. Purpose, membership, certification, etc. restated in accordance with reorganization.
2. Editor now included among officers. This was done because the ex-officio duties and committee appointments of the Editor were in fact those of an officer. The old Constitution continually stated, 'the officers and the Editor.' Other associations similar to ASHA list the Editor as an officer.
3. Method for impeachment of an officer provided.
4. Term of office of Secretary-Treasurer increased to four years. This office has the same reasons for being long-term as the Executive-Vice-President, Editor, and Chairmen of Committee on Clinical Cer-

tification and Committee on Ethical Practice.

5. A method for filling vacancies has been provided for officers for whom there is no officer-elect.

6. Election of all officers one year in advance. This is new only for the Secretary-Treasurer and Editor, but has been necessary unofficially in the past because of the heavy duties and university cooperation required.

7. Duties of Committees have been made somewhat more explicit, although these are not actually changes.

8. A Committee on Time and Place has been added, since if ASHA does not meet with SAA this becomes a responsibility requiring Committee investigation, as in 1950.

9. All dues for Honorary Life Members have been waived, including subscriptions to the *Journal of Speech and Hearing Disorders*.

10. A restatement regarding no discrimination as to race, religion, or color, has been added.

11. The Code of Ethics is not stated *per se* in the By-Laws. The length and the form of the Code, plus the fact that it is much more prone to change, make it inadvisable to include it in the By-Laws themselves. The power to act upon the Code of Ethics has been provided, however, and the Code will be distributed to Members and non-members. This follows the practice of APA, which also has a Code of Ethical Practice.

By-Laws of the American Speech and Hearing Association

(Not approved. Tentative draft, published for study only.)

Article I. Name

The name of this corporation shall be the American Speech and Hearing Association.

Article II. Purpose

The purposes of this organization shall be to encourage basic scientific study of the processes of individual, human speech and hearing, promote investigation of speech and hearing disorders, and foster improvement of therapeutic procedures with such disorders; to stimulate exchange of information among persons thus engaged, and to disseminate such information.

Article III. Membership

Section 1. Classes of Membership

The membership of this Association shall consist of two classes: Members and Associates. The Members shall comprise the voting body of the Association. The right to hold office shall be limited to Members.

Section 2. Eligibility

a. The requirements for Members shall be the bachelor's degree or higher in the general area of speech and hearing or tangent areas.

b. There shall be no requirements for Associates.

Section 3. Termination of Membership and Privileges

a. Any Member or Associate who violates the By-Laws or the Code of Ethics of the Association shall be suspended by a three-fourths vote of the Executive Council. Persons who have been suspended may, upon recommendation of the Committee on Ethical Practice, be reinstated after one year by two-thirds vote of the Executive Council.

b. A Member or Associate whose dues are not paid by January 15 shall not receive the *Journal of Speech and Hearing Disorders* until his dues have been paid for the current year.

c. A Member or Associate whose dues are in arrears on January 15 of the second year shall be automatically dropped from the rolls of the Association.

Article IV. Dues

The annual dues of the Association for Members and Associates shall be recommended by the Executive Council and Approved by the Membership. Dues are payable in advance for the membership year, beginning January 1. All Members and Associates shall receive all official publications of the Association, including the *Journal of Speech and Hearing Disorders*, Monograph Supplements thereto, and the Annual Directory.

Article V. Officers

Section 1. Designation

The officers of this Association shall be:

President
Executive-Vice-President
Vice-President
Secretary-Treasurer
Editor

Section 2. Duties

a. The President shall be the chief executive officer of the Association. It shall be his duty to preside at all regular meetings of the Association, to call emergency meetings of the Association, Council, or any of its committees, to appoint all members of committees except those specified to be elected, to define the duties of committees wherever such duties may not have been defined by the By-Laws, and to promote the interests of the Association in all ways.

b. The Executive-Vice-President shall be responsible for maintaining key policies of the Association and for executing continuing long-term matters involving Association policy. He shall serve as the chief liaison officer of the Association, and be ex-officio Chairman of the Committee on Liaison.

c. The Vice-President shall be ex-officio Chairman of the Committee on Convention Program.

d. The Secretary-Treasurer shall record and file the regular minutes of all official meetings of the Association. He shall receive and file copies of the minutes of important committee meetings and copies of reports of officers and committee chairmen. He shall handle all correspondence necessary to the proper performance of his official duties. He shall also serve as ex-officio Chairman of the Committee on Membership, and in this capacity receive applications for membership, keep a record of action taken, and maintain a current membership list.

The Secretary-Treasurer shall be entrusted with the collection and safeguarding of the Association's lawful funds, subject to the expressed wishes of the Members of the Association in their official meetings. He shall be bonded, shall be the only official of the Association authorized to draw money from the Association's funds and make expenditures, and his accounts shall be subject to annual audit. All routine expenditures as outlined in the budget prepared by the Committee on Budget shall be made by him; unusual expenditures will be referred to that Committee for action. He shall be business manager of all Association publications and manage the business matters attendant to the annual convention.

e. The Editor shall be Chairman of the Editorial Staff. He shall be responsible for all regular publications of the Association, and all other publications of the Association shall be subject to his general supervision.

Section 3. Officers-Elect

All officers shall be elected one year prior to the assumption of their duties. Officers-elect shall be members of the Executive Council. In the event of the incapacity of any current officer, the officer-elect shall immediately assume the responsibility of that office; in the event of resignation of an officer, the officer-elect shall immediately succeed to the office to complete the unexpired term as well as the term for which he has been elected.

Section 4. Removal from Office

At the initiation of any Council member, and upon three-fourths vote of the Executive Council, any officer may be removed from office for sufficient cause.

Article VI. Executive Council

Section 1. Designation

The Executive Council of the Association shall consist of the Officers, the Officers-Elect, the most recent ex-president, the Chairmen of the Committee on Clinical Certification and the Committee on Ethical Practice, and six Councilors-at-Large, at least one of whom shall be from the area of speech disorders, one from the area of hearing disorders, and one from the area of science.

Section 2. Meetings

Regular meetings of the Executive Council shall be held each year at the time and place of the annual Convention; special meetings may be held at any other times when necessary as called by the President. When it is impossible to gather a majority of the Councilors for a special meeting, business may be conducted by mail ballot. A quorum shall consist of the Councilors present or answering the mail ballot as the case may be.

Section 3. Powers and Duties

The Executive Council shall exercise general management of the affairs of the Association, and shall be the financial and business instrument of the Association. It is the body to which all Officers and Committees of the Association report and are immediately responsible. In general, its duties shall be executive, and it is empowered to perform all such duties as are set forth elsewhere in the By-Laws. Its actions in such matters shall be reported to the membership at the annual business meeting for information. Where specified elsewhere in the By-Laws, certain matters of business shall be referred to the membership for action at the annual business meeting.

Article VII. Elections

Section 1. Terms of Office

The terms of office shall be as follows:

President	One year
Executive-Vice-President	Four years
Vice-President	One year
Secretary-Treasurer	Four years
Editor	Four years
Chairman, Committee on Clinical Certification	Four years
Chairman, Committee on Ethical Practice	Four years
Councilors-at-Large	Three years

All terms of office shall begin immediately following the annual convention except that the term of the Secretary-Treasurer shall begin on July 1 following the convention.

Section 2. Elections

Two Councilors-at-Large and the necessary Officers-Elect shall be elected at each annual business meeting. Nominees shall be presented at the meeting by the Executive Council upon recommendation of the Committee on Nomination; further nominations may be made from the floor. The requirement for election shall be a majority of the votes of Members present at the annual business meeting.

Section 3. Vacancies

In the case of long-term officers, if the vacancy occurs before the election of an officer-elect, the office shall be filled by election at the next annual business meeting, and, if necessary, the Executive Council shall be empowered to appoint an officer pro tem to discharge the responsibilities of the office until the time of such business meeting. If a vacancy occurs for any reason among members of the Executive Council, other than officers, it may be filled for the unexpired term by action of the Executive Council.

Article VIII. Committees

Section 1. General Duties

The regular, continuing business of the Association shall be carried on by a group of standing committees as listed in the following sections. The Chairman of each committee shall prepare for the Executive Council a written report of the year's activities. This report shall be in the hands of the President at least 30 days prior to the annual business meeting. All committees are directly responsible to the Executive Council.

Section 2. Committee on Committees

The Committee on Committees shall consist of the Officers of the Association and the President-Elect, who shall be Chairman. Its duties shall be to recommend to the Executive Council the appointive personnel of all committees for the succeeding year.

Section 3. Committee on Nominations

The Committee on Nominations shall consist of the five immediate ex-presidents with the most recent ex-president as Chairman. The Committee shall prepare nominations for all Officers and Council members to be elected at the annual meeting and submit these nominations to the Executive Council for approval and recommendation to the membership.

Section 4. Committee on Budget

The Committee on Budget shall consist of the President, the Editor, and the Secretary-Treasurer, who shall serve as Chairman. The Committee shall be responsible for the preparation of the Association budget, and shall act upon all exceptional expenditures not otherwise authorized.

Section 5. Committee on Liaison

The Committee on Liaison shall consist of the President, Vice-President, Secretary-Treasurer, Editor, Chairman of the Committee on Clinical Certification, Chairman of the Committee on Ethical Practice, and Executive-Vice-President, who shall be Chairman. The Committee shall study the relationship of the Association to other associations, to various federal and state offices and bureaus, other allied professions, and similar areas, search for methods of making the Association's influence useful in these fields of service, and carry on such activity in these areas.

Section 6. Committee on Convention Program

The Committee on Convention Program shall consist of the Vice-President-Elect, the Vice-President, who shall be chairman, and additional members as shall be required to discharge the duties of the Committee. The Committee shall have complete charge of preparing the professional program for the annual Convention, relying on the Secretary-Treasurer for completion of all business arrangements necessary thereto.

Section 7. Committee on Membership

The Committee on Membership shall consist of three Members, one each from the fields of speech disorders, hearing disorders, and science, and the Secretary-Treasurer, who shall be Chairman. The Committee shall process applications of Members and Associates, and exercise general supervision over matters relating to membership. New Members shall be elected by the Executive

Council at the annual meeting upon nomination by the Committee on Membership. Application for Associate may be granted at any time by the Committee.

Section 8. Committee on Honors

The Committee on Honors shall consist of five members who are Fellows, and the President, who shall be Chairman. This Committee shall sponsor candidates for Fellowship and receive other nominations for Fellowship submitted by any Fellow, and shall submit such nominations to a vote of the Fellowship and transmit the results to the Executive Council for approval; it shall make recommendations to the Executive Council for Honors of the Association; and it shall submit to the Executive Council the customary annual resolutions regarding individuals and agencies to whom the Association owes its thanks.

Section 9. Committee on Clinical Standards in Speech

The Committee on Clinical Standards in Speech shall consist of a Chairman, who is appointed for a three-year term, and four other members all of whom hold the Advanced Clinical Certificate in speech. The Committee shall study and define the requirements for certification of clinical competency in speech and refer its recommendations regarding requirements for certification to those persons who have been certified in speech, and in this the Committee shall be regarded as representative of those persons. The resulting recommendations shall be transmitted to the Executive Council for approval. The Committee shall continuously study the existing standards and recommend methods for raising standards, including specific suggestions for short courses to be offered at annual Conventions.

Section 10. Committee on Clinical Standards in Hearing

The Committee on Clinical Standards in Hearing shall consist of a Chairman, who is appointed for a three-year term, and four other members all of whom hold the Advanced Clinical Certificate in hearing. The Committee shall study and define the requirements for certification of clinical competency in hearing and refer its recommendations regarding requirements for certification to those persons who have been certified in hearing, and in this the Committee shall be regarded as representative of those persons. The resulting recommendations shall be transmitted to the Executive Council for approval. The Committee shall continuously study the existing standards and recommend methods for raising standards, including specific suggestions for short courses to be offered at annual Conventions.

Section 11. Committee on Clinical Certification

The Committee on Clinical Certification shall consist of a Chairman elected for a term of four years and at least eight other appointive members, four in speech and four in hearing, all of whom hold the Advanced Clinical Certificate. The Committee shall process applications for certification, employing the qualification standards established by the Executive Council on recommendation of the Committees on Clinical Standards in Speech and Clinical Standards in Hearing. Each application shall be acted upon by at least four members holding Advanced Certification in the area (speech or hearing) in which the applicant is seeking certification, plus one other Committee member. Based upon its study of the qualifications presented by the applicants, the Committee shall submit recommendations concerning changes in standards to the Committees on Clinical Standards in Speech and Clinical Standards in Hearing.

Section 12. Committee on Ethical Practice

The Committee on Ethical Practice shall consist of four members including one each from the fields of speech, hearing, and science, who shall be appointed every other year, and an elected Chairman. The Committee shall be responsible for the formulation of the Code of Ethics for clinical practice in the areas of speech and hearing disorders, shall investigate violations of this Code, and shall recommend any action to be taken by the Executive Council as a result of such violations.

Section 13. Committee on Terminology

The Committee on Terminology shall consist of five members, each of whom shall be appointed for a term of four years, with one member newly appointed each year. The Committee shall offer advice in any matter involving terminology on which its counsel is sought by the Association or members thereof, and on any projects undertaken by the Association in which terminology is of concern.

Section 14. Committee on Time and Place

The Committee on Time and Place shall consist of three members and the Executive-Vice-President, who shall be Chairman. The Committee shall study and make recommendations to the Executive Council concerning arrangements for dates and locations for future Conventions.

Article IX. Clinical Certification

Section 1. Designation

The Association defines two levels of clinical competence, Basic and Advanced, in each of the separate areas, speech and hearing. Any member who so desires may apply for certification at either level in one or both areas; if in both, the levels of certification need not necessarily be the same. Upon review of his qualifications in light of the standards set by the Executive Council upon recommendation by the Committees on Clinical Standards in Speech and Clinical Standards in Hearing, the Committee on Clinical Certification will issue, with approval by the Executive Council, the certificate or certificates for which the member qualifies. These certificates will be renewed annually as long as the individual remains a member in good standing of the Association.

Certification by the Association shall be considered as evidence of clinical competency. A Basic Certificate shall indicate that the holder thereof is capable of performing general clinical duties under supervision and guidance. An Advanced Certificate shall indicate that the holder has demonstrated ability to conduct clinics, train others in the arts and skills of the profession and is a fully trained professional worker.

Section 2. Code of Ethics

A Code of Ethics, formulated by the Committee on Ethical Practice and approved by the Executive Council, shall contain the principles of professional and scientific responsibility by which Members shall be bound. Any violations shall be acted upon by the Executive Council as recommended by the Committee on Ethical Practice.

Charges of violations shall be presented in writing to the Committee on Ethical Practice by at least two Members of the Association. After proper investigation, if the Committee finds the charges warranted, it may issue warning to the Member in question. If such a warning is disregarded, the Committee may recommend disciplinary action by the Executive Council. The accused Member may present a statement in his behalf to the Council, but, if no statement is offered, the Council may act without it.

Article X. Association Honors

Section 1. Honors of the Association

The Honors of the Association may be presented to an individual by the Executive Council upon recommendation by the Committee on Honors. This award recognizes distinguished contribution to the field of speech and hearing and is the highest honor the Association can give.

Section 2. Fellowship

Fellowship, an award recognizing professional or scientific achievement, may be given to a member upon recommendation by the Committee on Honors, vote by the Fellowship, and approval by the Executive Council.

Section 3. Honorary Life Members

Any Member, upon attaining the age of 65, may apply for and automatically receive Honorary Life Membership with all privileges of a Member. Annual dues will be waived.

Article XI. Conventions

Conventions of the Association shall be held annually at a regular time and at a place determined by the Executive Council. Conventions will be held only in establishments in which meetings can be held without discrimination on the basis of race, religion, or color. The programs of each Convention shall include at least one Business Meeting of the Association. The responsibility for arranging the Conventions shall be shared by the Committee on Program and the Secretary-Treasurer, according to their duties as outlined in these By-Laws.

In periods of emergency, the Executive Council may, by three-fourths vote, cancel the annual Convention. In this case, the Executive Council shall be empowered to transact all business that would ordinarily be brought before that meeting.

Article XII. Publications

Section 1. Official Publications

The Association shall publish quarterly a periodical entitled *The Journal of Speech and Hearing Disorders*, shall issue irregularly such Monograph Supplements to the *Journal* as recommended by the Editor and the Committee on Budget, and shall also publish annually a Directory of the membership rolls.

Section 2. Editorial Staff

There shall be an Editorial Staff consisting of at least four Associate Editors named by the Editor, subject to ratification by the Council, and as many Assistant Editors as the Editor deems necessary, to be appointed by him.

Section 3. Business Manager

The Secretary-Treasurer shall be the Business Manager of the *Journal*. He shall submit a detailed and audited financial report of Association publications to the Council at the end of each fiscal year.

Section 4. Appropriations

Not less than three-fourths of the amount of annual dues received by the Association shall be allocated for publications. Funds thus accumulated which are not expended during the fiscal year shall be retained for use on future publications.

Article XIII. Amendment

These By-Laws may be amended by a two-thirds vote of the members present at a session of any official business meeting of the Association, provided the amendment is recommended by the Executive Council, or a copy of the proposed amendment, signed by at least ten members of the Association, was mailed to the Secretary-Treasurer at least two months before said meeting, and then mailed by the Secretary-Treasurer at least two weeks before said meeting to every Member of the Association.

Notice To Applicants For Clinical Certification

WHEN THE Association reorganized itself a year ago it removed clinical competence as a membership requirement and adopted a separate mechanism for evaluating qualifications. For this purpose Speech and Hearing were regarded as separate and parallel clinical areas, and in each area two levels of qualification, Basic and Advanced, were defined. Corresponding to the two areas the Association now has two committees, a Committee on Clinical Standards in Speech and a Committee on Clinical Standards in Hearing. In their establishment the Association voted 'that these Committees shall study and define the requirements for certification of clinical competency in their respective areas; that each Committee shall refer its recommendations regarding requirements for certification to those persons who have been certified in the area in question and that in this they shall be regarded as representative of those persons; that the recommendations of these Committees and of their respective groups shall be transmitted to the Council for approval.' A Committee on Clinical Certification also was created 'to process applications for certification employing the qualification standards established by the [above Committees].'

The two committees on standards have been working throughout the year and will report to the Executive Council in December. As soon as agreement is reached on the specifications the Committee on Clinical Certification will be able to proceed with applications. Meanwhile, all new applications have been held in abeyance. The Officers, the Executive Council, and the Committees in question assure applicants that they will act with all feasible speed, consistent with the objectives of the certification program.

Persons who desire certification and who are not presently Members of the Association are reminded that the first requirement is status as a Member. If they have not already done so, they should apply to the Secretary-Treasurer. The Committee on Clinical Certification has no authority to receive applications for Membership; its function is to examine the clinical credentials of applicants who are already Members.

Measuring The Severity Of Stuttering

Don Lewis
Dorothy Sherman

THE BASIC PROBLEM was to determine whether given samples of phonographically recorded stuttered speech, selected randomly from a large number of samples and presented to a group of observers, will be consistently judged to display greater or lesser degrees of severity than certain other samples. The aim of the present article is not to discuss in any detail the clinical or experimental utility of a precise scaling of the severity of stuttering but is primarily to describe the basic methodology used to obtain scaled samples of stuttered speech.

Selection of the Samples

A fundamental requirement in all psychological measurement is a collection or array of clearly identifiable specimens of behavior which possess some common attribute and which are limited in either time or extent. Ordinarily, the specimens must be repeatable, that is, must be available for more than a single observation. The measurement of speech or other transitory stimuli is best based on some kind of permanent or semi-permanent record. Since stuttering is ordinarily seen as well as heard, the view might be taken that, in any judgment of severity, the visible aspects of stuttering are as important as the auditory aspects. Although this view may be correct, it is not necessarily so. For the purposes of this experiment, it was assumed that severity can be reliably measured solely on the basis of what is heard. This simplifying assumption resolved the experimental task into one of determining whether samples of phonographically recorded stuttering can be consistently judged to possess greater or lesser degrees of severity. If they can be, then the way is open for discovering experimentally whether the visible characteristics of stuttering, when presented along with the vocal characteristics, affect judgments of severity based upon sound alone.

The selection of sample length was based upon several considerations. Among the possible aspects of severity of stuttering are: (1) the kind of stuttering; (2) the number of stuttering manifestations, that is, the number of moments of stuttering per unit of time; and (3) the degree of difficulty at the moment. It was felt that severity could not be reliably measured unless restrictions were placed on the responses which the observers were asked to make in relation to samples of stuttering. It seemed likely that any judgment of degree of difficulty at the moment would depend important-

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ly upon the qualitative features of the stuttering act, and that the kind of stuttering would not need to be considered separately. It also seemed likely that a high positive relationship would be found between the average degree of difficulty at the moment and the number of moments per unit of time. That such a positive relationship exists was assumed as a working hypothesis, a hypothesis which, if difficulty at the moment proved to be measurable, could be subjected to experimental test.

The decision was to attempt the measurement of severity in terms of difficulty at the moment rather than in terms of number of moments of stuttering per unit of time. The primary reason was that judgments of degree of difficulty would require discriminatory reactions and would not be based upon a mere enumeration of isolated events. Measures of behavior which have stemmed from time samples and an enumeration of specified occurrences have seldom proved useful in scientific investigations. In contrast, measures based on discriminatory reactions have often been very useful. It seemed probable, also, that estimates of degree of difficulty might be found to be reliable even for samples lasting only a few seconds. Any estimates of severity based on number of moments of stuttering per unit of time would necessarily require counting over time intervals of considerable length. Although the time factor might be inconsequential in many clinical situations, a reliable estimate of severity might be needed in the laboratory for the precise interval of time during which some other behavioral event was occurring.

Preliminary Investigation. As a first practical step toward choosing a suitable length for the samples, a male stutterer was asked to read some familiar prose material for phonographic recording. From this recording, which was about four minutes in length, 25 short samples, each 7.7 seconds in duration, were dubbed separately onto a large disk.

These 25 samples were scaled through an application of the method of equal appearing intervals employing a nine-point scale extending from *one,* for least severe stuttering, to *nine,* for most severe stuttering. Each of 40 students of elementary psychology judged the severity displayed in each of the 25 samples. To provide information on the effects of practice, if any, the samples were played four times to obtain four separate sets of judgments. Judgments were also made by 15 graduate students in Speech Pathology who had had training and experience in the treatment of stuttering. Median scale values and *Q*-values were obtained for the samples in the way described by Thurstone and Chave (*1*).

The results of this preliminary experiment indicated that scale values based on the judgments of elementary psychology students were satisfactorily reliable, that practice effects were negligible, and that the experts agreed with the naive judges in their evaluations of severity.

A second preliminary experiment was aimed more precisely at determining the length of the samples to be employed in the major investigation. To study differences which might arise in relation to sample length, 15 samples of each of three durations of 6, 10, and 15 seconds, approximately, were dubbed from the original record of the stutterer's reading. These samples, 45 in all, were judged on the basis of a nine-point equal appearing intervals scale by 40 graduate students

from a course in clinical psychology. After the judgments had all been made, the samples were repeated, one at a time, and opinions were obtained concerning length.

A median scale value and also a *Q*-value were calculated for each sample. The values of *Q*, the semi-interquartile range, which measured the dispersion or scatter of judgments, were, in general, greater for the six-second samples than for either the 10- or 15-second samples. This indicated that there was greater variability, and less reliability, in the judgments on the short samples than on the longer samples. The opinions of the judges on sample length indicated that the six-second samples were too short, the 10-second samples were about right, and most of the 15-second samples seemed unnecessarily prolonged. A consideration of these opinions, the *Q*-values, and a convenient time interval for a recording speed of 33⅓ rpm led to the adoption of nine seconds as the length of sample to be used.

Major Investigation. To obtain a population of samples of stuttered speech which would be as representative as possible of the universe of samples, 14 male students, all labelled stutterers and all registered in the Iowa Speech Clinic, each read three passages of prose material for phonographic recording. The three passages for each stutterer were chosen from groups of easy, average and difficult prose, which had previously been divided into these categories by several graduate students. Each stutterer was given the material in advance and was instructed to become generally familiar with it by reading it aloud several times.

From these recorded passages, one or more were selected for each stutterer to include samples of stuttered speech which seemed to display all levels of severity. One stutterer contributed 10 samples, six of the others contributed 15 samples each, and seven contributed 20 samples each. Thus, there were 240 samples from the 14 male stutterers dubbed onto several test records.

These 240 samples were rated on a nine-point scale by members of Group 1 composed of 30 elementary psychology students. On the basis of the results of this scaling and by listening to the test records, three 'expert' judges selected 96 samples with small *Q*-values to cover the entire range of severity. To provide a check on the reliability of the method employed in scaling the samples of stuttered speech, these 96 samples were presented to Group 2 composed of 106 elementary psychology students (54 women, designated as Group 2-A, and 52 men, designated as Group 2-B). Scale values obtained from judgments by Group 1 were compared with scale values obtained from judgments by Group 2 by employing Pearson's correlation procedure along with a test of the differences between the means of the scale values. A comparison was also made of scale values from Group 2-A with scale values from Group 2-B.

Finally, to construct a severity scale of stuttered speech, 33 samples representing the full range of severity from very mild to very severe were selected. These were phonographically recorded for possible use in training clinicians and others to recognize various levels of severity.

Results and Discussion

The results of the judgments by 30 elementary psychology students on 240 nine-second samples of stuttered speech from 14 male stutterers are

TABLE 1. Distribution of scale values for 240 samples of stuttered speech, from 14 stutterers. M_s stands for mean scale value and M_Q for mean semi-interquartile range.

	Severity of Stuttering										
Stutterer	0.50–1.49	1.50–2.49	2.50–3.49	3.50–4.49	4.50–5.49	5.50–6.49	6.50–7.49	7.50–8.49	N	M_s	M_Q
1	6	4							10	1.43	.67
2	9	4		1	1				15	1.58	.75
3	8	2	1	1	2	1			15	2.30	.96
4	5	9	2	3	1				20	2.30	1.00
5	7	4		1	1		2		15	2.60	.85
6	2	5	3	2	1	2			15	3.09	1.11
7	1	2	5	3	5	3	1		20	4.06	1.13
8	1	2	3	5	4	4	1		20	4.23	1.05
9			3	3	4	5	4	1	20	5.27	1.07
10			2	3	3	8	3	1	20	5.50	1.03
11				2	1	9	3		15	5.91	.98
12				1		7	3	9	20	6.95	.96
13				1	1	2	4	12	20	7.30	.68
14							4	11	15	7.77	.60
N	39	32	19	26	24	41	25	34	240		
Per cent	16.3	13.3	7.9	10.8	10.0	17.1	10.4	14.2			

summarized in Table 1. Severity of stuttering, divided into eight class intervals and extending from 0.50 to 8.49, is represented across the table. For example, it will be seen that six of the ten samples from Stutterer 1 were assigned scale values which fell in the interval from 0.50 to 1.49. This meant that six of the ten samples were judged to be relatively non-severe. The other four fell in the interval from 1.50 to 2.49, and thus displayed somewhat greater severity. In contrast, 11 of the 15 samples from Stutterer 14 were assigned scale values between 7.50 and 8.49, the highest interval of severity, with the other four samples falling in the next lower interval.

A mean severity level for each stutterer is given in the next-to-the-last column. These means were regarded as over-all measures of the positions of the 14 stutterers in the severity dimension. A few of the *Q*-values for the 240 samples were relatively large, indicating that the judgments of the observers on these samples were quite variable. In general, however, the *Q*-values were satisfactorily small.

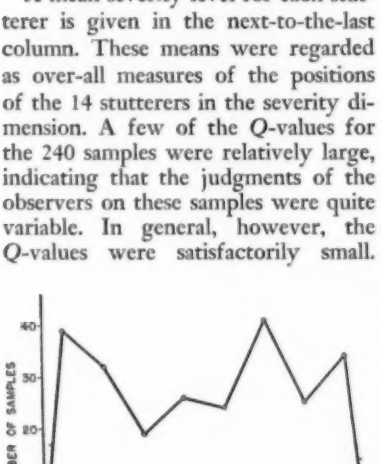

FIGURE 1. Distribution of severity ratings of 240 samples of stuttered speech. Mid-points of the severity intervals are given along the abscissa. Ratings were based on the judgments of 30 elementary psychology students employing a nine-point equal appearing intervals scale.

This is shown by the mean values for the various stutterers, given in the last column of the table.

The distributions of the scale values for the samples from the several stutterers are shown in the rows across the table. In the two bottom rows across the table are the number and percentage of the 240 samples falling within each of the eight intervals of severity. The number of samples in each of the eight severity intervals is represented graphically in Figure 1, with the mid-points of the severity intervals given along the abscissa. The shape of the distribution of severity ratings is far from normal. There is a definite peaking at the least severe end, with a marked dip at severity values of 3 and 4. The curve should be interpreted very cautiously. At best, it represents the distribution of the judged severities of 240 samples taken from a particular group of 14 stutterers. Furthermore, the distribution depended to some extent upon the method of scaling employed. Almost always, when the method of equal appearing intervals is used, there is an end effect—a tendency toward a piling up of samples at the two ends of the scale. Further study of the distribution of samples along the severity dimension is needed.

Whether the methodology used in this study to scale samples of stuttered speech yields a precise scaling of severity is a question importantly related to its usefulness as an experimental or clinical tool. There is evidence, in the present instance, that the obtained severity scale has internal consistency, that is, that it does yield the same results on successive applications. As described in the preceding section, 96 of the originally judged samples were presented a second time to a group of 106 elementary psychol-

TABLE 2. Comparisons of the scale values of 96 samples of stuttered speech as obtained from the judgments of Group 1 (30 undergraduate students), Group 2 (106 undergraduate students), and Groups 2-A and 2-B (respectively, 54 women and 52 men of Group 2). Pearson's correlation procedure was employed along with a test of the differences between the means of the scale values.

	Mean	*Diff.*	*S. E. dif.*	*Sign. Level*	*r*
1	5.04	.41	.34	23.4%	.98
2	5.45				
2-A	5.38	.11	.35	75.7%	.97
2-B	5.49				

ogy students (54 women and 52 men). Table 2 presents the results obtained for the correlation of scale values derived from judgments on the first presentation with scale values derived from judgments on the second presentation, and also for the correlation of scale values for men with those for women on the second presentation. The obtained Pearson *r*'s of .98 and .97 and the lack of significance for differences between the means of scale values are strong evidence that the scale of severity obtained in the present study is a rather precise one.

In view of the demonstrated reliability of the obtained scale, it seems apparent that such a tool could be of value in training clinicians to recognize levels of severity of the vocal characteristics of stuttering, an ability which would be clinically useful not only in the initial evaluation of the stutterer's problems but also particularly in the evaluation of progress made during therapy. There are possibilities also of utility as a therapeutic device in aiding the stutterer to judge his own speech in an objective fashion. With modern techniques of magnetic tape recording the procedure would be relatively simple.

Experimentally there is often the problem of whether there is a relationship between severity and the variable under study. A measure of severity may be needed for a precise short interval of time during which some other behavioral or situational event occurs or varies. Success in any attempt to define or to examine the effects of stimulus conditions with which severity of stuttering is functionally related is dependent, in part, upon the degree of reliability of the index of severity employed. Also, a reliable index is needed if questions concerned with differences between persons labelled as stutterers and so-called normal speakers are to be answered satisfactorily. For example, a substantial number of investigations have indicated the presence of physiological aberrations (such as breathing disturbances, vaso-constriction, and action current abnormalities) during the period preceding overt stuttering. It would appear to be of importance to determine the extent to which such differences are proportional to the severity of stuttering. Reliable estimates might be obtained by an observer who had been trained with a previously constructed rating scale; or the stutterer's speech might be recorded during the experimental periods and estimates of severity obtained later by the methodology herein presented.

Summary

The purpose of this article was to describe the basic methodology by which a precise scaling of the severity of samples of stuttered speech was obtained. Measurement of severity was in terms of difficulty at the moment rather than in terms of number of

moments of stuttering per unit of time. It was demonstrated that, by the use of the scaling method of equal appearing intervals, severity of stuttering can be reliably measured solely on the basis of what is heard. The final scale consisted of 33 nine-second samples of phonographically recorded stuttered speech selected for small *Q*-values and to represent the full range of severity from very mild to very severe.

Reference

1. Thurstone, L. L. and Chave, E. J. *The Measurement of Attitude*. Chicago: Univ. Chicago Press, 1929.

A Consideration Of Thiamin Supplement In Prevention Of Stuttering In Preschool Children

Lester L. Hale

RECENT publications have shown a growing concern of professional workers for more adequate aids towards retarding the development of stuttering among children. In view of the difficulties still besetting therapists in practice of correction and rehabilitation of individuals in advanced stages of stuttering, the pursuit of preventive measures is a most significant emphasis. With wiser advice being given lay and professional people for the handling of youngsters who demonstrate tendencies toward the stuttering syndrome, it may be hoped that the incidence of stuttering might be reduced.

This paper presents no new etiological or therapeutic theory, but is a report solely of research in progress aimed at discovery of additional information which might be of value in a program of stuttering prevention. The long range research is designed to investigate nutritional factors which may be associated with development of the speech synergy, and the effect of nutritional supplements upon children who appear to be demonstrating difficulty in establishing stability of oral communication. Early stages of the studies have been directed towards discovering whether observable changes in the speech fluency of children could be detected during the administration of a vitamin B_1 (thiamin) supplement. It is with this pilot investigation that the present article is concerned.

Since the onset of stuttering appears to be in the preschool ages and in the primary grades, and the precipitation of stuttering seems to occur in the early years of the child's life (*3*), the present approach has been concerned with attempts to retard the entrenchment of the stuttering syndrome in children who are in the process of learning to talk.

In determining to try the administration of thiamin as a stuttering prophylaxis, the many physiological and biochemical studies on stuttering (7) served as guides. The 12 tests to which Johnson (*9*) would put a new point of view which claims an organic etiology for stuttering were also considered. The more thought that has been given to the thiamin treatment, however, the more it has been believed to be compatible with many existing theories of the etiology of this disorder.

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The author holds with Johnson that there is normal non-fluency during the preschool ages (decreasing as one grows older), and that stuttering as an 'anticipatory, apprehensive, hypertonic avoidance reaction' develops in the main from social reaction to the repetitions of the child who is learning to talk (*8*). Hesitant speech is common to almost everyone at almost every age under almost any circumstances, but real pathological stuttering obtains when these hesitancies are accompanied by other characteristics and personality conflicts. It is further agreed that such emotional conflicts may accelerate the development of stuttering and become causes of aggravated pathology in their own right.

The problem of determining when the speech pattern is normally non-fluent and when it is primary stuttering is most difficult during the ages of two to four when the child is in the more acute processes of developing the speech synergy. Hesitancies, blockings, reversals, repetitions, and prolongations of sounds are normally expected at this age. When these non-fluencies are produced with excessive hypertonicity a significant aspect of the advanced stuttering syndrome is evidenced, and social reaction occurs. Whether or not hypertonicity is originally of organic nature, social pressure itself may augment the hypertonicity and increase the repetitions and so create the vicious circle leading to the development of stuttering as a serious problem.

The fact remains, however, that many children never experience undue hypertonicity even though they speak with what are regarded as normal hesitations and repetitions. Others demonstrate prolonged difficulty in establishing the normal speech synergy, and produce non-fluencies with considerable muscular tension. It may be assumed that the longer or more severe the non-fluencies, the greater the hazard of rejection and social pressure.

The question is raised as to whether, in addition to the guidance of parents as an indirect approach to the child's problem, there is a nutritional avenue of aid in reducing the child's hypertonicity which might prevent the prolonged and excessive non-fluency and thus reduce the chances of precipitating full-fledged stuttering.

Johnson is concerned with prevention of stuttering by appealing for more common-sense social acceptance of non-fluency as an essential aspect of speech growth. While this point of view is unquestioned, perhaps prevention may begin even earlier with the alleviation of conditions creating excessive and hypertonic non-fluency. The present research is not concerned with whether there be biochemical or physiological differences between stutterers and non-stutterers, but whether children in pre-stuttering and primary stuttering s t a g e s can be treated to reduce the hypertonicity of their non-fluency.

Believing that hypertonicity stems originally from neurological origin, ways of reducing non-fluency may be evolved from aids to the nervous system during the critical times of speech (and neurological) development. This reasoning led to the quest for such an aid which would not be any form of sedative, but of nutritive benefit only, and suggested vitamins, specifically thiamin.

Characteristics of Thiamin

The central nervous system depends upon carbohydrate as a source of energy and thiamin is needed in carbo-

hydrate metabolism. When there is a reduction in normal thiamin intake the central nervous system is likely to suffer. Conversely, if added strain is placed upon the nervous system, or there is a greatly augmented metabolism, there is increased thiamin requirement. If normal thiamin intake is not sufficient to meet these conditions or thiamin is being inadequately assimilated, neurological imbalance may result.

The symptoms usually attributed to a thiamin deficiency are described by Goodman (*6*):

> Severe thiamine deficiency leads to the condition known as beriberi.
>
> The chief symptoms of thiamine deficiency are related to the nervous and cardio-vascular systems. . .
>
> The symptoms of *mild thiamine deficiency* are not as characteristic as those of the severe form and the condition may easily escape diagnosis. It is only within recent years that the attention of the physician has been directed to the possibility that thiamine deficiency may be fairly prevalent. . . The symptoms consist of loss of appetite, muscular weakness, pains and paresthesias in the extremities, a tendency to edema, decreased blood pressure and low body temperature. The diagnosis may be confirmed by a careful study of the dietary history. Thiamine deficiency, however, may occur in association with an apparently adequate diet, for the vitamin is not stored in the body to a great extent. Thus, an increase in metabolic rate or gastro-intestinal disturbance such as diarrhea of fairly long duration, necessitates an increased thiamine intake. Mild deficiency is also observed in infancy and childhood. The symptoms are pallor, loss of weight, restlessness, slight stiffness of the neck and spasticity of the extremities.

Addinal (*1*) points out that sometimes the symptoms of thiamin deficiency remain latent, and appear only with onsets of infections, after surgical operations, during pregnancies, or at other times when there is increased metabolism. It is not fully understood how thiamin is employed by the body, but there is general evidence that it plays a fundamental role in the intermediary metabolism of carbohydrate (*6*).

A more detailed explanation of thiamin's function may be found in *Howell's Textbook of Physiology* (*5*), which points out that 'The central nervous system which depends mainly on carbohydrates as a source of energy is usually the first to suffer when thiamine intake is low.'

According to Goodman (*6*) there appears to be little if any danger in the oral administration of thiamin as it is not likely to have any toxic effect. Sensitization to thiamin chloride from parenteral administration, however, has been reported (*10*). Thiamin daily requirements are expected to vary considerably, and there appears to be little chance for building up a thiamin reserve. Hence, as bodily changes make additional demands, the thiamin blood level may fluctuate accordingly (*6*).

Vitamins have become a household food, and the layman makes frequent diagnosis and prescription of his own vitamin needs, but this freedom and practice are generally discouraged, for too little is yet known of their values and uses. Thiamin is particularly popular, and unproven optimism is claimed for its benefits (*4*).

After having examined the therapeutic index of thiamin, it was reasoned that if hypertensions are created by sensory-motor imbalance resulting from low thiamin blood levels in the presence of stepped-up stimulation or metabolism, it is not unlikely this could affect the functioning of the intricately coordinated speech musculature before it is observed in the larger muscle groups.

Increased sensory stimulation can be found in difficult and prolonged eruptions of teeth, acute tonsilitis, chronic intestinal disorders, emotional reaction to an unstable or erratic environment, or in physical or psychic trauma. Perhaps it could be assumed that neurological developments such as establishing cerebral dominance, progressing from mass to individual response, acquiring specificity of muscle movement, or of decreasing perseveration time might in themselves place heavy demands upon carbohydrate metabolism and in turn call for greater thiamin supply. It is quite likely that excessive muscle fatigue, febrile conditions, trauma, rapid growth and maturation, sulfa therapy, or other medications create metabolic disturbances or impair the utilization of thiamin to produce far-reaching end effects upon tonicity and hence upon speech fluency.

It was pointed out above that thiamin deficiencies may exist without any outward manifestations until circumstances of additional stress are placed on the system. Could it be that a residual diathesis may exist in the thiamin level, and that this accounts in part for the narrow margin of safety in some individuals who seem predisposed to stutter? One whose level is generally high may sustain much greater physical and environmental strain than one whose level is lower, and when a thiamin deficiency is present there may be greater likelihood that strains may precipitate stuttering.

The ease and fluency of the conditioned reflexes of speech are most easily upset when the synergic movements are being first acquired as symbols of thought and feeling during the preschool age. If thiamin can be of any assistance in controlling stuttering, it is felt that it would be of most preventive value in the young child.[1]

Procedure

Before undertaking any research plans for thiamin therapy, the matter was carefully discussed with several physicians. A pediatrician agreed to prescribe thiamin in cases who sought help and were mutually regarded as primary stutterers. Only one of many cases treated is reported here.

Parents brought a two-and-one-half-year-old boy to the clinic when becoming alarmed over a rather sudden onset of severe 'stuttering' after an attack of bronchitis. At the clinic the child demonstrated many muscle spasms when initiating words, accompanied with the usual sound and word repetitions and blockings. He had always been an exceedingly active child and quite independent. He slept fairly well at night, but rested only little during the day. He was an only child, and no stuttering was reported in his ancestry. He stood alone at seven months and walked at eight months. His incisors began appearing at five and one-half months, but he had not yet cut his second molars. Little if any teething trouble was noted. Babbling periods and other stages of speech development were reported normal, the child having very fluent speech before

[1]Penson (*11*) conducted exploratory research at Ohio University in 1951 which studied the effect of thiamin on adults who stutter. The 17 adults included in the experiment received the usual speech training administered to stutterers at the Ohio University Speech and Hearing Clinic. The results indicated that the greatest speech improvement was observed during the periods of thiamin consumption as compared to those periods during which a placebo was administered. Penson concluded that there was some possibility that thiamin contributed to speech improvement.

the sudden appearance of nervous tensions resulted in the blockings and repetitions. Hand preference was not yet clearly established. His health history revealed measles at the age of 18 months. Tonsils were enlarged but not infected; he had very few sore throats. Appetite had always been good and no constipation had been experienced. His daily synthetic vitamin intake included 10 drops of oleum percomorph (vitamins A and D) and 50 mg. of ascorbic acid (vitamin C). In November, 1948 he had had a severe attack of bronchitis at which time sulfa therapy was administered. It was after this attack that he began to have trouble with his speech.

The pediatrician then approved adding 25 mg. thiamin hydrochloride to his vitamin intake. It was two months before the child was seen again by a speech clinician because the child had had another severe attack of a respiratory infection. The parents reported, however, that he had begun to do better with his speech prior to his second illness, but that after he had recovered the second time his speech was worse than it had been at any previous time. Thiamin was administered again, however, with a resulting improvement in speech. The mother was seen in December, 1949 and reported that the boy's speech was practically normal and was being controlled by intermittent thiamin administration. A tonsillectomy and adenoidectomy were then performed and recuperation was accompanied by a return of stuttering. Thiamin was again administered, and six months later speech remained normal.

In order to organize systematic research to determine the possibilities in thiamin therapy as a stuttering prophylaxis, the interest and support of the Director of Nutritional Investigations and Services of the Florida State Board of Health was secured. Under cooperative arrangements a pilot investigation (*2*) was completed. This project involved the administration of thiamin (10 mg. three times daily) to a select group of stutterers of preschool age, most of whom were children of university students who lived in similar quarters in a veterans' housing project. A control group of preschool stutterers from the same environment was given placebo (an inert dose) during the same period of time. At the end of one month the groups were reversed and observations continued over another month. 'Under these circumstances, not only was there an opportunity for a controlled comparison of a group taking the vitamin with a group taking an inert dose during the same period of time, but it was also possible to observe each child while he was taking the vitamin and while he took the inert dose. Thus, in a sense each case was controlled against itself' (*2*). In most cases follow-up observations continued beyond the two-month control period.

Case studies have been made, and all observations of speech progress were kept as objective as possible. Neither the parents nor the clinician conducting the project knew which dose (thiamin or placebo) the child was receiving. In fact, in many cases, parents claimed they were certain during the first month that the child was taking 'sugar pills' but noticed improvement in the child's speech. With equal certainty they claimed the child relapsed the second month while taking what they thought was vitamin, but which in reality was the inert dose.

Findings

1. Observable speech improvement occurred in 55 per cent of all cases.
2. There may have been improvement in additional 20 per cent of the cases.
3. No improvement could be claimed in 20 per cent of the cases.
4. Of the two- and three-year-olds in the experiment, 80 per cent were observably improved.
5. Only 50 per cent of the four-year-olds were definitely improved.
6. It is doubtful that either of the two five-year-olds made much improvement.
7. Thiamin administration appeared to have no effect upon the speech pattern of the seven- and eight-year-olds.
8. In four cases where there was regression of speech fluency occurring following the cessation of thiamin therapy, there was improvement noted again after thiamin was resumed.
9. One of the cases which was reported as unimproved during thiamin therapy, showed an increase of tensions, hesitations and other stuttering symptoms after the thiamin had been stopped.
10. With only one exception, cases that showed marked reduction of stuttering symptoms, made the improvement within the first two weeks of treatment.

Conclusions

1. It is felt that enough evidence of improvement in sufficient number of cases indicated that the administration of thiamin hydrochloride may be effective in preventing stuttering among preschool children.
2. It may be expected that the younger the child, the more effective the thiamin therapy is likely to be.
3. If thiamin is going to help in the reduction of speech non-fluency in a given preschool case, it is likely to be demonstrated within two weeks of administration of a 30 mg. daily dose.

Other factors than the thiamin administration may have been contributing to the successes claimed for its use. Social changes, psychological determinants, general health, environmental stability, and other complications, no doubt, are all involved. In so far as possible, however, these have been taken into consideration in case analysis along with the fact that one cannot be sure improvement would not have taken place regardless of treatment. If thiamin therapy is ever shown to be of value in preventing stuttering, it is not expected to supplant the counseling and parental guidance methods now in use in preventive programs. On the contrary, it supports such procedure and offers merely another possibility for mitigation of the non-fluency patterns.

Other nutritional factors than thiamin may be involved, furthermore, and should also be isolated. At any rate, despite evidence against the existence of organic differences between stutterers and non-stutterers, greater attention needs yet to be placed on differences which may be present when stuttering is developing but which may disappear after stuttering has become habituated and perpetuated by later socio-psychic factors. It has already been observed that there is a diminution of observable gains from thiamin administration as the age of the child being treated is greater. No doubt the more a child has progressed from a normal non-fluency stage to primary stuttering, the greater the need for counsel to parents and other indirect therapy measures.

The results of the pilot study argued for further research in this direction, and have led to the beginning of detailed and comprehensive studies. These will be undertaken with a greater number of cases and will include not only controls on thiamin administration to preschool stutterers, but will involve comparative studies of thiamin levels between stutterer and non-stutterer. It will include complete physical examinations, comprehensive medical, dietary, psychological and social histories, hematologic studies, checking of stool specimens for parasites, and thiamin studies on blood and urine. Objectivity regarding speech improvement will be as stringent as possible.

Until favorable and undeniable evidence of the value of thiamin in stuttering prophylaxis can be furnished from such comprehensive studies, it is urged that speech correctionists consider this approach to the problem cautiously and with great professional care. If there is any potentiality in this preventive method, much harm may accrue against it should the treatment be given premature acclaim and indiscriminate prescription. Administration of synthetic thiamin as a dietary supplement to growing youngsters whose metabolic rate is stepped up to the detriment of neurological balance may prove to be of value in the establishment of fluent speech synergies, but much more time is needed further to evaluate this point of view.

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Stuttering of Different Types In Identical Twins

Friedrich S. Brodnitz

HEREDITY has frequently been mentioned as an underlying factor to the development of stuttering. Schmidt (*6*) and Luchsinger (*4*) concluded that records of stuttering in identical twins prove the existence of such a hereditary factor. Nelson, Hunter and Walter (*5*), studying 200 twins, found a larger percentage of stuttering among identical twins than among fraternal twins. Weiss (7), who recently published a study of cluttering and stuttering, believes that cluttering precedes stuttering in a large percentage of cases and assumes that stuttering as a functional disturbance is not inherited as such, but that 'cluttering, as a preexisting constitutional organic condition, might be inherited.'

In applying statistical analysis to stuttering research, however, no attempt has been made to separate the cases of imitation stuttering from genuine stuttering. Imitation stuttering was first described clinically by Froeschels in 1928 (*1*), and has been established since by a great number of observations. Froeschels defined imitation stuttering as presenting a break in the inner logic of the regular development of the disorder. As Froeschels (*2*) has shown, in genuine stuttering, in spite of the variety of symptoms, a uniform sequence of stages can be traced in the majority of cases.

In imitation stuttering, no logical sequence in the development of stuttering can be traced. It can be best compared to the inadequate attempt of a layman to imitate a stutterer—in portraying a stutterer on the stage or in a joke about stuttering. The imitator will produce some symptoms which have impressed him while omitting others which the trained observer will expect.

The most characteristic symptom of imitation stuttering is the pseudotonus, a prolonged closure in the production of an initial consonant, followed by an almost normal or even normal explosion. Instead of the prolonged and violent articulation followed by a strong explosion or friction which is observed in true stuttering, the pseudotonus produces the imitation of strong pressure, insufficiently strong with respect to the duration, without the expected explosion.

In a careful analysis of the history of 108 cases, after previously making the diagnosis of imitation stuttering from the symptoms only, Froeschels (*3*) and Weiss and Barczinski (*8*) could verify imitation stuttering in 81 cases. Stuttering relatives, classmates, and friends serve as examples for the imitation. Even short exposures

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to stuttering strangers (baby sitters, beggars at the door, salesmen) have been found sufficient cause for the development of imitation stuttering.

It stands to reason that the coexistence of genuine and of imitation stuttering in twins would make such cases questionable as proof of a hereditary factor in stuttering. The following observation is presented as an example of such stuttering in identical twins.

In November, 1950, a mother came to the Speech Clinic at Beth David Hospital bringing her 7½-year-old twins for treatment. Their remarkable similarity characterized them as identical twins. In addition, anthropometric measurements of the boys revealed no marked differences, and most of the measurements were identical.

As it is the rule in the Clinic, the first examination was done *before* any history was taken. While both stuttered heavily under the pressure of the unfamiliar c l i n i c atmosphere, the twins' speech symptoms were of entirely different types.

Philipp G. showed all the symptoms of a stutterer of longer standing: embolophrasic clonotonus, protrusion of the tongue, looking away and up to the right. W o r d s were sometimes divided by momentary stoppage. The left corner of the mouth was occasionally raised in tono-clonic pressure.

Mark G., in contrast to his brother, exhibited typical pseudotonus. Having omitted whole words while repeating loud reading by the examiner he was asked to repeat the phrase intact. He then hesitated, built the appropriate articulation, with perhaps a little more pressure than a normal speaker, maintained the articulating position for a long time and finally produced a normal explosion or friction. He had the same habit of looking away or up as his brother but he used the gesture frequently when no speech difficulty arose.

After the completion of this first and purely symptomatological examination, Philipp was diagnosed as a genuine stutterer and Mark as an imitation stutterer.

Following the preliminary diagnosis, the mother was questioned about the history. The mother, who is very cooperative and who is apparently on very good, well-balanced terms with the children, contributed the following facts to the history:

Delivery was normal, with Mark being the 'older' twin, having preceded Philipp in birth by about 20 minutes. Both children began to speak at the beginning of their second year, with normal development of speech. At the age of three both children became highly allergic to grasses and were treated with pollen injections and antihistaminics.

At the age of almost five, Philipp was treated for a 'cold' with some suppositories (antihistaminic?). When his brother Mark developed a similar 'cold,' he too received a suppository and shortly afterwards lapsed into a deep coma. During the next 24 hours he was attended almost constantly by two doctors. Philipp was badly frightened by this dangerous situation. He first refused to speak and soon afterwards he began to develop the first symptoms of stuttering.

Mark, having recovered from the attack, did not stutter for a number of months. But in the Fall, when he went to kindergarten, he began to exhibit stuttering symptoms when asked to repeat aloud.

The mother made a point of the difference in the frequency in stuttering. While Philipp (the genuine stutterer) stutters very frequently, Mark

stutters only under stress and in excitement, and does not stutter at all during the summer vacations.

During the last year, the principal of the school has separated the two boys in an attempt to help them. She now tells the mother that Mark (the imitation stutterer) takes the separation rather badly. Before doing anything in class he always looks around and waits until he can follow the lead of other pupils.

With the history being in harmony with the preliminary diagnosis, it appeared definite that Philipp is a genuine and Mark an imitation stutterer.

Conclusion

The coexistence of stuttering of different types in identical twins is a possibility that, so far, has been generally overlooked in research. Such a case is here reported to underline the need for caution in drawing conclusions as to the existence of a congenital factor in stuttering. One might, of course, argue that not only genuine stuttering but also the development of imitation stuttering might be based on an inherited readiness. That assumption is hard to disprove. In assembling figures on the incidence of stuttering in identical twins, all cases should be sorted out in which the factor of imitation plays an important part in the development of the speech disorder.

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Therapy For Speech Deficiencies Resulting From Acute Bulbar Poliomyelitis Infection

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AMONG THE PATIENTS who returned to the Department of Physical Medicine and Rehabilitation of Bellevue Hospital, New York City, for periodic follow-up examinations subsequent to acute bulbar poliomyelitis infection, a characteristic speech aberration was noted. This symptomatology, which repeatedly presented itself, was a rhinolalia aperta organica passiva. After consulting with medical social workers, families, and the patients themselves, it was determined that this speech symptom did not obtain prior to the onset of the disease. A special project was undertaken to explore the efficacy of therapeutic techniques upon the speech deficiency arising from this particular etiology. A group of 19 patients was given thorough otolaryngological examinations and was scheduled for individual therapy sessions on a weekly basis.

In all of the patients observed, the initiating pathology was bulbar poliomyelitis in contra-distinction to anterior poliomyelitis. Acute anterior poliomyelitis is characterized by an attack of a specific virus upon the anterior horns of the gray substance within the spinal column. In the spinal type, the aftermath of the pathology may be neural destruction involving the trunk or the extremities of the body. With bulbar poliomyelitis, there is an attack of the disease in the region of the medulla oblongata. Involvement of this organ is manifested clinically by paralysis of muscles of deglutition and respiration. Dyspnea, cyanosis, and paralysis of the pharynx, larynx, and tongue are prominent symptoms. This type of poliomyelitis is by far the deadliest, accounting for more than 90 per cent of the fatalities resulting from the disease.

The characteristic syndrome of rhinolalia aperta was found to arise from a hemiparesis or paresis of the velum because of the involvement of the cranial nerves IX and X. The dysfunction occurred unilaterally or bi-laterally, depending upon the severity of the onslaught of the disease. The velum, in these cases, could not be elevated sufficiently to impinge upon Passavant's Bar in order to seal off sufficiently the nasopharynx during the production of non-nasal sounds.

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Sometimes this rhinolalia would disappear after the patient had regained his health and his general debility had vanished. Sometimes the nasality was the lone remaining trace of the disease. In this project it was therefore decided to delay any speech therapy for a period of two months after the acute stage of the disease, in order to ascertain whether any spontaneous remission of the symptoms would occur. If there was no spontaneous improvement, speech therapy was instituted and any succeeding amelioration of the difficulties was attributed to the beneficial effects of the therapeutic measures.

Since the characteristic syndrome of post-bulbar poliomyelitis speech resembles that of cleft palate in that the objective in each case is the sealing off of the nasopharynx, the therapy that was attempted was closely allied to the techniques utilized with cleft palate. All types of blowing exercises were found to be helpful. Especially for children, candles, pin-wheels, balloons, harmonicas, horns, and feathers were useful gadgets for strengthening velar action. Blowing ping-pong balls up an inclining ramp, or competitive games of blowing the ping-pong ball off the opponent's end of the table provided an excellent medium for the development of velar control, as well as affording interest and motivation.

Other techniques found to be helpful in stimulating velar activity were panting and yawning exercises and massage of the palate by a sterile swab or a finger. The latter technique tends to encourage a gag reflex which elevates the palate. In cases where there are residual traces of activity in the velum, electrical stimulation of the palate to increase the movement of this structure may be attempted. (This type of therapy should be under the direction and surveillance of a physician who is a specialist in Physical Medicine.)

With the energizing of the whole body the velum will tend to work more efficiently. Emphasis was put on costo-abdominal breathing and on drill material requiring volume and energy. Although the entire speech pattern was adversely affected by the nasality, there were often special sounds and sound constellations that were particularly defective. Ear training was found to be a major problem in many of the patients. Periodic recordings were made of the patient's speech in oral reading and conversational situations. These recordings were analyzed by both the therapist and the patient, and the outcomes of these analyses determined the future trends of the therapy.

Results

The results of the therapy undertaken were most encouraging. Twelve of the patients demonstrated an observable degree of improvement. Of this group, four attained a marked degree of improvement, while eight showed degrees of improvement varying from marked to slight. The remaining seven patients attained no amelioration of the difficulty, or withdrew from therapy before any improvement was observable.

It was noted that, among the patients who demonstrated a degree of improvement, there were seven who experienced a good return of muscle function. These patients were able to elevate the palate and uvula to effect a satisfactory closure during the therapy session, but there was no adequate carry-over into normal activities.

After consulting with the families of these patients, it was determined that the lack of progress in these cases could be partially attributed to various emotional, rather than physiological, factors. Among these factors were: over-protection on the part of the family in the mistaken belief that the patient was 'sickly' as a result of his illness, the patient's development of the attitude that he deserved to be the center of attention because of his illness, and other personality difficulties which may or may not have been a result of the attack of poliomyelitis.

A coordinated program on the part of the speech therapist, medical social workers, and psychologists, along with the patients and their families was undertaken in an attempt to alleviate some of these difficulties. This program included group therapy sessions, individual counseling sessions, and special attempts to eliminate some of the factors contributing to the difficulties.

In six of the seven cases, success in eliminating some of the causes of personality maladjustments effected an improvement not only in the patient's emotional outlook, but also in the patient's speech as well.

A Preliminary Investigation Of The Ear-Choice Technique In Threshold Audiometry

E. Thayer Curry
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AS A RESULT of accelerated hearing conservation programs, there has been a renewed interest in the testing of hearing acuity in children. Utley (*12*) has reviewed some of the methods suggested, and also has proposed some new techniques. Dix and Hallpike (*5*), and Evans (*6*) have developed 'Peep Show' techniques; Bloomer (*2*) previously suggested a similar idea, using pictures as a motivating device. Recent work by Bordley, Hardy and Richter (*3, 8*) at Johns Hopkins University proposes the use of the changes in skin resistance as a method of measuring hearing thresholds of very young children or those who have no language. All of these techniques make use of a discrete frequency audiometer.

Thus far none of the techniques has used the concept of a revision of the psychophysical method of obtaining threshold measurements. Among the requisites of a good audiometric technique for children are: speed in testing, motivation, accuracy, a check on the validity of the child's response, and the use of readily available equipment. The Ear-choice Technique, which is the object of this study, meets all of these requisites with children who have language. This modification requires no elaborate equipment, is extremely simple to administer, and can be completed in a minimum of time.

The method has been called the Ear-choice Technique, because of the nature of the response required. It is essentially a series of sweep frequency tests at descending Sensation Levels. With the attenuator at a constant level, the stimulus is presented first to one ear and then the other through a binaural headset by changing the headphone choice switch on the audiometer. This procedure is followed for each of the frequencies tested. The person being tested is asked, first, if he hears the sound. The tester checks on the accuracy of this response by asking a second question, 'In which ear is the tone?' In clinical procedures these two questions may be omitted and the individual is simply instructed to touch the earphone in which he hears the tone. This technique has been used successfully in clinical situations with children as young as 30 months. In some cases, the Ear-choice Technique was the only method which would give reliable results. It was used

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to get an indication of the hearing of a group of mentally deficient preschool children with gratifying results.

In view of the clinical success with the technique, experimental research on its validity and reliability seems to be warranted. It was felt that the first step in this research should be an experimental study comparing the Ear-choice Technique with Standard Clinical Audiometry. Adults were tested in order to enlist their full cooperation in both techniques.

The present study presents the results of an experimental investigation comparing the hearing thresholds obtained by the Ear-choice Technique and Standard Audiometry.

Procedure

Subjects. The subjects in this study were 20 male college students, who were enrolled in classes in speech at the University of Illinois. Their ages ranged from 17 to 30 years. The only qualification for the subjects was that they have hearing which could be measured within the intensity range of the audiometer. Most of the subjects had essentially normal hearing, but two individuals had a hearing loss of 50 db at 4096 cycles.

Equipment. The Microtone, A.D.C. Portable Audiometer, Model 53C, was set up in a sound-treated room. Any standard audiometer with a switch for changing the stimulus from one earphone to the other might have been used. The stimulus tone was off until presented by depressing the interrupter switch.

Experimental design. A discrete frequency threshold audiogram was obtained from each of the 20 subjects by both the Ear-choice Technique and the Standard Technique. The order of presentation of the tests as well as the choice of ear to be tested first by the Standard Technique, was varied by the use of a table of random numbers. After the headphones were placed on the subject's head, both tests were administered without removing the headphones.

Many procedures for obtaining hearing thresholds are accepted clinically. Many modifications and abberations of the psychophysical method of limits were observed in the literature before the technique, referred to as 'Standard' in this study, was decided upon (*1, 4, 10, 11*). Both the Standard and the Ear-choice Techniques are outlined completely below.

Standard Technique

1. The subject was asked to respond when he heard the stimulus tone by raising his hand. He was instructed to hold up the hand as long as he heard the tone; he was to put it down when he no longer heard the tone.

2. Six frequencies were tested in the following order: 1024, 2048, 4096, 8192, 1024, 512 and 256 cycles per second.

3. The ear to be tested first was predetermined randomly as previously described.

4. Threshold finding procedure:[1]

a. The initial stimulus was presented at a Sensation Level of 30 db.

b. If the stimulus was heard, the level was decreased in 10 db steps until it was inaudible.

c. From inaudibility, the level was increased in five db steps until the stimulus was audible.

[1]This procedure was set up in an attempt to provide a technique which closely approximated the psychophysical method of limits but which could be administered under clinical conditions.

d. From audibility, the level was decreased in five db steps to inaudibility.

e. The tone of lowest intensity to which the subject gave three consecutive responses was considered the threshold, and recorded.

f. If the initial stimulus at 30 db was not heard, the level was increased in 10 db steps until there was a response. From this point, the same procedure of down in five db steps, then up in five db steps was used to determine the threshold.

5. After the threshold for each frequency had been determined, the other ear was tested following precisely the same procedure.

Ear-choice Technique

1. The subject was asked to respond when he heard the stimulus by touching the earphone from whence it came.

2. The frequencies were tested in the following order: 1024, 2048, 4096, 8192, 512 and 256 cycles per second.

3. Threshold finding procedure:

a. The initial stimulus of 1024 cycles at a Sensation Level of 30 db was presented first to one ear and then to the other. Tones were presented with sufficient repetitions to assure that no direct pattern of alternation from left to right or right to left was evidenced.

b. If the sound was audible, the frequency dial was then shifted to 2048 cycles. With the attenuator dial remaining constant, the stimulus was presented alternately, at random, to the ears of the subject.

c. With the attenuator dial constant, the remaining frequencies were presented in the same manner.

d. After presenting the entire range of frequencies at 30 db, the Sensation Level was then decreased to 20 db for a complete sweep, then to 10 db and lesser intensities.

e. Each time the subject failed to respond, the threshold for that ear at that frequency was determined by increasing and decreasing the Sensation Level in five db steps, until a consistent response was obtained. The attenuator was then reset to the original sweeping level and the sweep continued.

f. When a threshold was obtained, that particular threshold was checked by presenting the stimulus once again at the time of the next lower sweep; after this it was eliminated from further testing.

4. If the initial stimulus was inaudible in either or both ears, that threshold was found immediately, and the stimulus level returned to the initial Sensation Level of 30 db.

Results

Of 240 comparisons between audiometric thresholds for the Ear-choice and the Standard Technique, there were five deviations of 10 db and 72

TABLE 1. Pearson product-moment correlations between the audiometric thresholds of Standard Audiometry and the Ear-choice Technique.

	Frequency					
	256	*512*	*1024*	*2048*	*4096*	*8192*
Right ear	.83	.89	.85	.86	.99	.99
Left ear	.82	.82	.64	.96	.99	.94

of five db. The remaining 163 comparisons show no differences between results obtained on the two tests. Thus, 98% of the comparisons fall within the plus or minus five db deviation expected in thresholds obtained by a test-retest using exactly the same procedure both times.

Table 1 presents the Pearson product-moment correlation coefficients calculated between the threshold values of the Standard Technique and the Ear-choice Technique. Each r is statistically significant for the number of cases in the sample. It should be noted that the r's for the low frequencies are somewhat lower than those for the high frequencies. This discrepancy probably can be accounted for by the limited range of scores at the low frequencies. Pearson (*cited*, 7) has devised formulas for correcting r values calculated between distributions which have a limited range of scores, but they require an estimate of the population range. Since there are no available data giving this information, no correction has been made for the r's obtained in the present study.

As an additional statistic, a double classification, multiple scores per cell analysis of variance, was calculated (*9*). Tables 2 and 3 give a summary of this analysis. Using the within cells variance as the error term, the F ratio for between frequencies (r o w s) is significant beyond the 1% level for both ears. The between tests (columns) variance, however, is actually much smaller than the error term, making the calculation of the F ratio superfluous. Accordingly, there is no evidence to support a conclusion that the differences may be attributed to anything but chance.

On the basis of these results, it is possible to conclude that the threshold measurements obtained by the Ear-choice Technique are at least as good a measure of hearing acuity in adults as is the Standard Technique.

In the opinion of the authors, the Ear-choice Technique contains requisites of a good test for young children:

1. The test may be completed in an extremely short time. Although administration time was not recorded, it was observed that the Ear-choice Technique consistently took less time to complete than the Standard Technique. Because of the speed in sweeping the frequencies with the Ear-choice Technique, it is possible to get a fairly complete picture of the child's hearing within his attention span. With the usual audiometric procedures, only one or two thresholds can be obtained in the same amount of time.

TABLE 2. Summary of analysis of variance of audiometric thresholds for 20 subjects tested by two techniques (right ear).

Source of Variation	*Sum of Squares*	*df*	*Mean Squares*	*F*
Between Frequencies	5164.58	5	1032.92	7.68
Between Tests	.42	1	.42	—
Interaction	19.42	5	3.92	
Within Cells	30665.00	228	134.50	
Total	35849.42	239		

TABLE 3. Summary of analysis of variance of audiometric thresholds for 20 subjects tested by two techniques (left ear).

Source of Variation	*Sum of Squares*	*df*	*Mean Squares*	*F*
Between Frequencies	4253.75	5	850.75	8.08
Between Tests	41.67	1	41.67	—
Interaction	8.33	5	1.67	
Within Cells	23992.50	228	105.23	
Total	28296.25	239		

2. In clinical testing of young children, motivation appeared to be strong. The children seemed anxious to determine where the sound would be next.

3. The data show that the Ear-choice Technique is an accurate measurement of hearing acuity in adults, as compared to the generally accepted techniques.

4. The introduction of another question, 'Where do you hear it?', requires an exact response from the child. If it is necessary to coax a response from the child, no important visual or auditory cue is given with the Ear-choice Technique. It is possible to ask the child if he hears the sound and to use the localization of the stimulus as a verification of his response.

5. The Ear-choice Technique is exceedingly simple to administer. The equipment needed is readily available. Nearly all of the present models of audiometers have dual headphones with some switching arrangement for changing the stimulus from one phone to the other.

Another distinct advantage of the test is its ability to discover a unilateral deafness immediately. This eliminates the retesting of cases where shadow curves result when ordinary audiometry is performed.

Summary and Conclusions

A sample of 20 male college students was tested by both the Standard Audiometric Technique and the experimental Ear-choice Technique. Ninety-eight per cent of the thresholds differed by five db or less as measured by the two techniques, and no difference was greater than 10 db. The product moment r's between the two techniques ranged from +0.64 to +0.99. An analysis of variance was used to compare the results of the two tests and no significant differences were found between the two methods.

On the basis of these results, further research in the use of the Ear-choice Technique with children can be more meaningful. The reliability and validity of this technique when used with children of different age levels should now be investigated.

In consideration of the relative facility with which thresholds may be obtained by the use of the Ear-choice Technique, it is believed that it should be compared to the Standard Audiometric Technique in a time study as a possible method of choice for adult clinical audiometry.

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Time-Patterns Of Speech In Normal Subjects. II

Marcel Verzeano

AN ATTEMPT was made in previous articles (*1, 2*) to define the parameters which have to be determined in the study of time patterns (or durational characteristics) of speech and to suggest theoretical and experimental methods for their investigation.

As further research has been conducted, certain questions have been raised as to the significance of those parameters and more data have been collected with regard to the relations between them and their variations under different conditions. Some of those questions will be discussed here.

1. Why is an arbitrary minimum pause necessary for the definition of the units of speech; why not study the units of speech as they are produced by the subject, whatever their absolute durations and whatever the absolute pauses between them may be?

As will be shown further, the units become shorter as the minimum pause defining them is reduced and, when the latter is quite small or inexistent, most of the elementary phonations represent syllables or monosyllabic words. Phrases and sentences, or longer words, however, are formed by the grouping of elementary phonations into longer units. If the influence of emotion or pathology or other factors on the durational characteristics of the longer units is to be studied as well, then it becomes necessary to define such units; and the best way of defining them is by the minimum pause that separates them.

There is no reason to assume that it is only on the elementary phonations that emotional or pathological factors may have an influence. On the contrary, there are reasons to assume that such factors may also affect the mental processes responsible for the expression of more complex concepts and their 'translation' into phrases and sentences. The study has to be extended, therefore, to all units, whatever their duration, as well as to the influence of the various delays on the parameters under investigation.

Furthermore, the analysis of long speech records could hardly be done by hand with any efficiency and automatic analyzers are indispensible for their study. The best way to 'tell' a machine—an automatic analyzer—what sort of groupings it has to count and classify is to tell it to count and classify all the units of speech separated by a minimum pause of a certain length and in order to enable the machine to perform its task it becomes necessary to translate this minimum pause into

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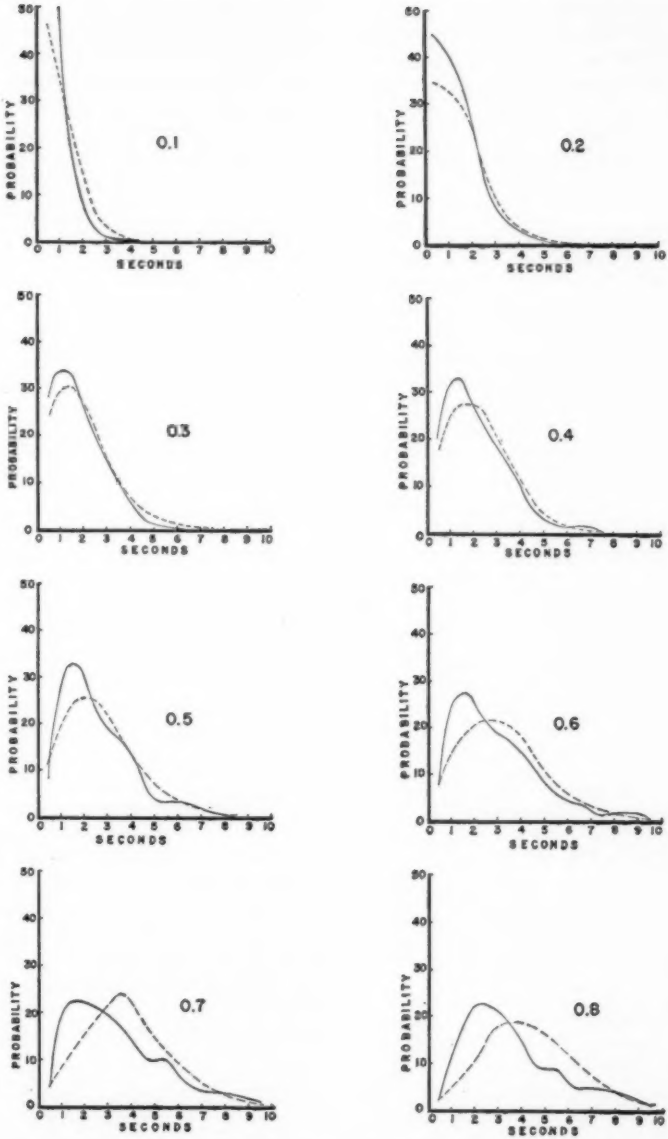

FIGURE 1. Progression of obtained (unbroken line) and expected (broken line) distributions of units of speech from time-delay 0.1 to time-delay 0.8, inclusive. Duration in seconds, uncorrected. Eight subjects.

machine language, that is, it becomes necessary to build a time-delay circuit in it. This time-delay circuit in the brain of the computer 'listens' to the phrases as they are being expressed and allows the machine to operate only on such units as defined by the investigator.

2. In a hypothesis recently presented (*1*), it has been postulated that durations of the units of speech are randomly distributed and, therefore their distribution should approximate a Poisson series. It has been shown that, in fact, when the units are defined by a minimum pause of 0.5 sec., their distribution approximates a Poisson series. But what would happen if the units were defined by a different minimum pause—say 0.2 sec. or 0.8 sec.? Would their distribution still approximate a Poisson series?

3. What becomes of the fundamental parameters—frequency (F), average duration of the unit of speech ($\overline{U}$), and variance (σ^2)—as the minimum pause which defines the unit is varied?

In order to investigate these aspects of the problem, speech records of eight 'normal' subjects [eight subjects taken from the same group of 20 university students investigated previously (*1*)] were again studied with the analyzer. The record of each subject was analyzed 10 times, changing the setting of the delay each time so that, finally, every record was analyzed in terms of 10 different time-delays: 0.1, 0.2, 0.3 sec., etc., up to 1.0 sec.

Frequency Distributions

As in previous experiments, the frequency distributions of the units of speech of the eight subjects were lumped into one average distribution. This was done separately for each time-delay from 0.1 to 0.8 sec., inclusive, so that, finally, there were eight average distributions, one for each time-delay. From the mean of each one of these actual distributions the theoretical distributions were calculated according to the Poisson formula (*1*).

TABLE 1. Values of $\overline{U}$ (sec., uncorrected), σ^2 (sec.), F (units/min.), Chi-square and P for delays 0.1 to 0.8. Eight subjects.

Delay	$\overline{U}$	σ^2	F	χ^2	P
0.1	0.77	0.28	58.8	26.37	below 0.01
0.2	1.35	0.94	32.4	5.51	0.40
0.3	1.77	1.43	26.5	2.96	0.80
0.4	2.19	1.89	22.6	3.28	0.75
0.5	2.58	2.82	19.4	6.73	0.50
0.6	3.10	4.15	16.8	9.81	0.30
0.7	3.81	8.33	14.3	13.74	0.10
0.8	4.32	13.34	11.9	20.98	below 0.01

The series of curves in Figure 1 shows the comparison between expected distribution and observed distribution for each time-delay. Table 1 presents the corresponding values. The analysis was restricted to intervals 0.1–0.8 because of the small numbers in the longest two intervals. By studying Figure 1 and the last two columns of Table 1 certain observations can be made.

1. The general tendency is for random distributions at most delays; the chi-square tests show an excellent fit between expected and actual distributions at delays 0.3 and 0.4 (probabilities 0.80 and 0.75, respectively), a good fit at 0.5 ($P \doteq 0.5$), while the fit is only fair at delays 0.2 and 0.6 ($P \doteq 0.40$ and $P \doteq 0.30$) and quite poor at 0.1, 0.7, and 0.8 ($P \doteq 0.01$, $P \doteq 0.10$ and $P \doteq 0.01$, respectively).

Further investigation will have to show why the departure from randomness is so pronounced at very small delays on one hand and at relatively long delays on the other. The

departure from randomness at the very small delays might be due to the fact that the smaller units of speech (of the order of 0.77 sec. at delay 0.1) are more uniform, more equal to each other than the longer units (of the order of 2-3 sec. at delays 0.4, 0.5, and 0.6); or it may be only an artificial departure from randomness. At delay 0.1, for example, most of the units (76.74%) 'fall' in the first counter of the analyzer which, at this delay, will record all units whose duration is between 0.1 and 1.0 sec., so that differences in duration between units may be masqued by the fact that so many of them are thrown in the same 'big basket'—counter No. 1.

In further investigation on smaller delays and smaller units, therefore, the stepping switch of the frequency distribution section of the analyzer (2) will have to be set in such a way that it will move in steps of 0.1 sec. instead of steps of 1.0 sec. so that the units which appear now in the first counter will appear in the first 10 counters and give us a much better idea of the actual distribution of their durations.

2. Beginning at delay 0.4 and continuing at the other delays, the actual distribution curve shows irregularities. There are undulations in the curve and, at delays 0.7 and 0.8, the departure from a Poisson distribution is considerable.

The irregularities which can be seen in the curve when the delay goes beyond 0.4 sec. suggest the appearance of some rhythmic disturbance or disturbances that must be of a physiological or linguistic nature since we are dealing with normal subjects.

Respiratory pauses should break up the speech in a fairly regular way and, considering the fact that under normal conditions the subject breathes about 16 to 18 times per minute, one would expect phrases lasting approximately one eighteenth to one sixteenth of a minute (3.3 to 3.7 sec.) to be relatively frequent and to produce, by their repetition, some sort of irregularity in the distribution curve. In the series of curves in Figure 1 it can be seen that the irregularity which appears at delay 0.4 and continues to be present at the higher delays appears precisely in the counter which records units of an average duration of 3.5 sec.

One would also expect that the breaking up into phrases of approximately 3.5 sec. by the respiratory pauses should become visible (detectable by the analyzer) when the delay is of an order of magnitude comparable to that of the respiratory pause. Otherwise, if the delay is considerably smaller, it will 'favor' the breaking up of the speech flow into small units, if it is considerably longer it will cover the respiratory pause and favor the grouping into longer units and, in either case, the respiratory rhythmicity will remain undetected. Now, if the duration of an inspiration pause in speech is assumed to be about 0.4 to 0.6 sec., that means that the respiratory rhythmicity should become detectable when the delay is set at 0.4 sec., which is indeed the case in the series of curves in Figure 1.

3. There is a 'shift to the left' of the actual distribution at all delays. In other words, the shorter units, and more particularly the units which fall in counter No. 2 of the analyzer (average duration 1.5 sec.) are more numerous than it should be expected from the theoretical Poisson distributions. This would indicate that, in ordinary speech, the shorter words and shorter expressions may be considerably more numerous than the longer

ones, and that there may be a tendency to stop for a significant pause after many of the shorter words, thus allowing the analyzer to classify them among the shorter units.

In fact, it was reported by Kaeding (*cited, 3*), in a study of written material in the German language, that 49.76 per cent of the words had one syllable, 28.94 two, 12.93 three, 5.93 four, 1.72 five, 0.50 six, 0.22 from seven to fifteen totaled.

The Behavior of Other Parameters

Study of the values for the mean duration[1] of the unit of speech ($\overline{U}$), for the variance (σ^2) and for the frequency (F) show that, as one would expect, when the delay is increased, F decreases while $\overline{U}$ and σ^2 increase, and that the variations of these parameters, with changes in the minimum pause defining them, seem to follow certain laws whose determination will be attempted in further investigations of the durational characteristics.

[1]Values of $\overline{U}$ are as obtained from the analyzer. 'Absolute' durations may be determined by subtracting from each mean the corresponding delay value.

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Speech Disorders Among European Military Personnel In World War I: Part 1.

Harlan Bloomer
Hide Shohara

ARTICLES ON speech disorders arising from warfare, published in German, French, Italian and British medical journals or other scientific publications issued within the period 1914 through 1920, are summarized in the two parts of the present article. The disorders have been classified under four main headings: (1) aphonia and dysphonia, (2) mutism and deaf mutism, (3) stuttering, (4) aphasia and dysarthria. Part 1 is devoted to aphonia and dysphonia; Part 2 will deal with the other three types of disorders. Where the original sources make it possible to do so, each classification has been sub-divided as to incidence, etiology and pathogenesis, symptomatology, treatment and prognosis. The problem of traumatic hearing loss (to which abundant references exist) is not dealt with here except insofar as it is incident to a disorder of speech.

The bibliography was prepared from standard sources, supplemented by reference lists from the articles themselves. More than 200 articles were read, from which the present list of references was selected. Although coverage of the topic is not exhaustive, it reveals the main trends of theory and application pertaining to speech disorders of traumatic origin in World War I.

Rehabilitation Centers

Most of the speech correction for military personnel was provided through the otolaryngological or neurological departments of hospitals or field hospitals. Centers existed in nearly all of the major countries at war.

In 1914, the German government auxiliary military hospital in Zehlendorf was turned over to the distinguished speech pathologist, Herman Gutzmann, who organized it as a speech clinic. Gutzmann's reputation brought many cases to the clinic, but the number was greatly increased through an order issued by the German ministry of war instructing all chief physicians of the Prussian hospitals to refer speech cases to this

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clinic. He received valuable aid from voluntary teachers of the deaf and dumb, and in spite of great difficulties in securing and retaining clinicians, Gutzmann and his assistants were handling as many as 80 patients a day in 1916.

Owing to the intimate relationship existing between Gutzmann's institution and the phonetic laboratory in Hamburg conducted by Dr. Panconcelli-Calzia (*22*), arrangements were made to transform this laboratory into a speech clinic. Dr. Weygandt (*57*), director of the insane asylum in Friedrichsberg, assigned a new building for this purpose, and offered to contribute his own services as neurologist and psychiatrist. Dr. Helmcke (*22*) was also added to the staff. The clinic later became an affiliate of the Royal Reserve Hospital, Wanzbeck, and opened in July, 1916. It was to receive patients from other sources and the number of patients receivable was not limited.

The methods of speech correction used in this clinic were largely 'phonetic' in character, and diagnosis was dependent in part upon the standard research equipment of the phonetics laboratory. In describing the procedures in therapy and diagnosis, Dr. Weygandt (*57*) made particular reference to the use of kymographic records of breathing, phonograph recordings and examination by x-ray. Phonetic reeducation was used after medical therapy had healed the wounds and removed pathological conditions.

In 1917, after visiting the speech clinic of Dr. Nonne in the General Hospital in Eppendorf, Panconcelli-Calzia modified his method of treatment of aphonia and aphonia associated with mutism, speeded up the tempo of his phonetic reeducation by supplementing it with suggestion therapy, claiming thereby to accomplish cures in one interview. He also received the aid of local physicians for treatment by faradization and hypnosis, as well as for the examination of hearing defects and the interpretation of x-ray films.

In Austria, extensive work in the correction of speech defects was carried on notably by Dr. Emil Froeschels with his associate, Dr. K. C. Rothe, and a corps of assistants. In 1914, the military authorities began to refer wounded soldiers with speech defects to the speech clinic of Dr. Froeschels, which formed a division of the out-patient otological clinic of Dr. Urbantschitsch at Vienna. Dr. Froeschels also served in a military capacity as consulting physician in speech pathology for all military hospitals in Vienna.

The number of patients had so greatly increased by 1915 (with the added difficulties of giving them adequate attention in widely separated hospitals) that a special department for speech disturbances was organized in Kriegsspital No. 4 (*11*). Cases of aphasia, aphonia, stuttering, dysarthria and head wounds were treated there.

In January of 1916, the division was incorporated into the otological department of Garnisonspital No. 2, and to it was also assigned the Filiale Hainburgerische school so that it then possessed 230 beds, a psychological clinic, class rooms, workshops, and other special rooms. Six months later 250 more beds in the neighboring Reservespital were made available. In June of the same year the clinic was moved into a large and conveniently arranged 4-story building and opened

as a general hospital for treatment of head wounds, including those involving speech defects. Dr. Froeschels served as head physician. The patients were given a thorough physical and mental examination and individual treatment. The clinic was well equipped with phonetic and medical apparatus and provided with workshops (book-binding, shoe shops, etc.). By February, 1918, the staff had treated more than a thousand patients, of whom 563 were treated for mental troubles.[1]

Similar institutions for the examination and treatment of traumatic speech defects were established in France and England. For the most part these centers were associated with neurological services or, especially in France, with institutions for the education of the deaf and deafened.

Hospitals or hospital divisions especially for the treatment of brain injuries were organized in the major European countries engaged in World War I. The outstanding work in England was directed by Henry Head; in Germany, by Isserlin at Munich, Poppelreuter at Cologne, Goldstein at Frankfurt, and Helmcke, Weygandt and Panconcelli-Calzia at Freidrichsberg; in Austria, by Hartmann at Graz, and Froeschels at Vienna; in France, by Babinski and Froment at Rennes, and Marie and Foix in Paris.

Among the high aims of these centers were those suggested by Froeschels directed toward a coordination of the facilities of hospital, psychological laboratory, school and workshop so that the patients might be thoroughly studied and rehabilitated to the greatest possible extent.

[1]See also the section on Stuttering in Part 2 of this article.

Aphonia and Dysphonia

Incidence. Voice disorders constituted one of the major problems of the physicians and phoneticians concerned with the rehabilitation of soldiers in World War I. In the many articles and books in the European literature dealing with this type of disorder, references were found to nearly a thousand cases. Inasmuch as many authors do not give any indication of the number of patients that came under their care, it is to be supposed that the total number treated was far greater than this.

Hurst and Gill (*24*) described voice disorder as the most common hysterical symptom seen in soldiers. [See also Pollak (*45*), Hirschfeld (*23*), Léri (*28*), Froeschels (*10*), and Smurthwaite (*52*).] Donath (*9*) stated that the number of hysterical voice, speech and hearing cases was great because of the highly explosive nature of the weapons employed in the war. According to Gutzmann (*18*), the number of soldiers in Germany showing speech and voice disorders of a hysterical type was so great that finally the government established special centers for the rehabilitation of these men.

Aphonia and Dysphonia Due to Mechanical Injury. Comparatively few references are found which deal with the problem of voice disorders resulting from wounds of the larynx or throat. Milligan and Westmacott (*37*) found injuries to the larynx comparatively rare. According to Ramsey, Grant, Whale and West (*47*), only 1.2 per cent of war wounds involved the throat. The great vessels, nerves and the larynx itself frequently were pushed aside and slipped out of the path of the projectiles. Various types of wounds, however, did affect the

function of the larynx. These included non-penetrating wounds, penetrating wounds, perforating wounds and injuries to the nerves. Such injuries might be followed by disturbances of function, ranging from a slight dyspnea to asphyxia. The phonatory disturbances ranged from a dysphonia or partial aphonia to absolute mutism. The vocal symptoms oftentimes served as valuable diagnostic signs.

Harmer (*20*), in discussing wounds of the larynx and the resultant effects, mentioned aphonia, hemorrhage and dysphagia as the principal symptoms of laryngeal wounds. In two-thirds of the cases, there was complete recovery after the first week except for alteration in the voice. In his opinion normal voice was rarely attained. Of the remaining one-third, some patients became neurasthenic and others developed total paralysis of the larynx. Liébault and Coissard (*30*) discussed aphonia as resulting from direct wounds to the larynx. Thollon and Labernadie (*55*) described four cases of almost complete aphonia in which the larynx was not actually invaded by the projectiles but was bruised so that sub-mucous infiltration and tumefaction of the ventricular bands took place. The interarytenoid muscle was paralyzed.

It is not known that damage to the nerves caused a greater number of dysphonias than were brought about by direct injuries to the muscles, but there are several references to indicate that nerve injuries occured in significant numbers. Goldsmith (*14*) recorded a case of a soldier with a wound in the neck which so affected the recurrent laryngeal nerve that total loss of voice resulted. McKenzie (*31*) described a case of paralysis of the left vocal cord due to a bullet wound in the neck. Voice returned to normal in three weeks except that the patient could not shout. Rose (*49*) and others referred to cases of laryngeal paralysis and loss of voice. O'Malley (*43*) described two cases, one of which fully recovered voice following paralysis of the left vocal cord due to left recurrent nerve injury. Gutzmann (*18*) also discussed this problem.

Accounts of the treatment procedures for cases of mechanical injury to the throat are few. Thollon and Labernadie (*55*) advised rest with no smoking and sedatives. They predicted recovery in three weeks. Gutzmann (*18*) prescribed voice exercises with light lateral pressure of the larynx in cases of unilateral paralysis of the recurrent nerve. He made use also of the stimulus of harmonic vibration. Since there was danger that the patient might develop a falsetto voice, he recommended that the therapist have the patient start with a low tone. If compensatory action of the uninjured vocal fold could be developed, a good result was attained.

Etiology and Pathogenesis of Functional Disorders. Disorders of voice were variously ascribed to 'functional' and 'organic' causes. The 'functional' category has been used with some latitude of meaning in this paper inasmuch as the terminology of the source material does not always make possible an exact interpretation of the author's use of the term. Hurst and Gill (*24*) designated a form of functional aphonia as 'hysterical aphonia . . . caused by suggestion and curable by psychotherapy.' This definition is the one that apparently accords with the ideas of the majority of authors who use or imply the term 'functional.' Other authors used the term 'functional' to include those disorders of voice stemming princi-

pally from a malfunctioning or incomplete functioning of the vocal organs incident to inflammation of the vocal folds, neurasthenia or other aggravating factors. As thus interpreted, the majority of cases discussed were not of organic origin.

Gradenigo (*15*) observed that aphonia, mutism, and deafness might be due either to neurotic or hysterical causes or to organic lesions. Of the latter he distinguished two kinds: those due to illness, and those due to cerebral shock, wounds of the head and neck, fracture of the skull, and body wounds. In his opinion the organic causes were more frequently encountered in war.

De Sandro (*8*) stated that functional aphonia is due to a functional paralysis of the vocal folds–a peripheral, not a central disturbance. Liébault (*29*) and Liébault and Coissard (*30*) ascribed its occurrence to motor difficulties resembling anarthria or dysarthria accompanied by respiratory disturbances.

Hurst and Gill (*24*) attributed functional aphonia to a hysterical condition, and described a flaccid and a spastic paralysis of the laryngeal muscles. Amersbach (*1*) stated that pure aphonia and dysphonia spastica could be demonstrated to be of hysterical origin in a large number of cases. Gutzmann (*19*) believed that the term 'hysterical' should be applied with caution, inasmuch as he found that in 200 cases only a very few could legitimately be classed as hysterical.

The element of severe emotional strain was frequently found as a precipitating factor. Hurst and Gill (*24*) found 20 out of 100 cases showing this factor. In these cases, however, aphonia was generally a sequela to mutism and represented an intermediate stage in the patient's recovery from mutism. Smurthwaite (*52*) was of the opinion that 'the mind and feelings act on bodily function causing different functional troubles; mental and physical over-exertion prepares the patient for a fixed fear or anxiety producing shock, resulting in an emotional neurosis in the form of aphonia . . .' Liébault (*29*) and Liébault and Coissard (*30*) also described aphonia as a transitory phase in recovery from mutism in which weak voice and respiratory insufficiency are always present. Shock was oftentimes given as the precipitating factor in these cases. The malady followed a course in which a loss of consciousness occurred after a shell explosion. A gradual return of consciousness was followed by nervous crisis (an emotional state with trembling, anxiety, and so forth), during which time the patient found that he could not talk. Sollier and Chartier (*53*) believed that shock furnished the greatest number of cases. [See also Scholz (*51*) and Gradenigo (*15*).] Bilancioni (*4*) stated that many cases of aphonia and mutism resulted from shock but that they were not all hysterical cases. Liébault (*29*) believed that these cases were not due to psychoneurosis, and that they showed hyper-excitability only as a secondary symptom. Nadoleczny (*42*) stated that one-half of his cases attributed their aphonia to catching cold, but he believed that fear, anxiety, displeasure and anger were the real causes. In his opinion, although 40 per cent of the cases showed laryngeal inflammation, this condition had no bearing on the speech disorder and he considered examination of the folds as unimportant. Arnoldi (*2*) described hysteria as the chief cause but stated that diseases also

played an important part in causation.

Auto-suggestion and imitation were presented by Hurst and Gill (*24*) as bases for functional aphonia under circumstances in which the soldier believed that his throat was delicate and in which he found that the aphonia or dysphonia did not improve with time. Subsequent laryngeal examinations by physicians confirmed the soldier in the idea that something was wrong with his larynx, and as a result he became definitely aphonic. Gradenigo (*15*) stated that auto-intoxication, exhaustion, over-emotionalism and pre-occupation with thoughts of past and impending dangers oftentimes provided the basis for aphonia.

Disorders of voice were frequently said to result from any laryngeal irritation or strain. Gas, according to Hurst and Gill (*24*) accounted for the majority of these cases (58 out of 100). Smurthwaite (*52*) mentioned several instances of aphonia or dysphonia due to primary laryngitis following irritation by noxious gas. The effect of the gas was described as a reflex action causing laryngeal spasms. Sollier and Chartier (*53*) stated that the symptoms of laryngeal irritation resulting from explosion were hard to distinguish from ordinary laryngitis. Irritations due to gas poisoning were described by Helmcke, Panconelli-Calzia and Weygandt (*22*). Hurst and Gill (*24*) ascribed 15 per cent of their cases to catarrhal laryngitis, pharyngitis or bronchitis. They also mentioned the effects of inflammation caused by scarlet fever and diphtheria. Liébault (*29*) considered laryngitis and bronchitis to be of etiologic significance. In several of his cases a careful examination did not substantiate an original suspicion of tuberculosis. Sollier and Chartier (*53*) mentioned laryngitis as an etiological factor but stated that the irritation thus caused never resulted in total aphonia. Milligan (*36*) and Davis (*cited, 46*) stated that functional elements were engrafted on the organic in cases of laryngitis. René-Celles and Girard (*48*) called those forms of aphonia due to catarrhal laryngitis, acute or chronic, by the technical term 'pseudo-aphonia' and stated that this disease required a different type of treatment from the other functional aphonias. Hirschfeld (*23*) referred to catarrhal laryngitis as a cause of aphonia. René-Celles and Girard (*48*) stated that old maxillary sinusitis could cause aphonia, and Watson-Williams (*cited, 46*) reported a case of aphonia associated with latent antral infection with pernicious purulent secretions. In this instance, aphonia disappeared in two days after the infection was removed. He warned that in these cases the patient should always be examined for the presence of tuberculosis.

The voice was observed to become weak as a result of extreme bodily weakness following an exhausting illness. Typhoid fever, malaria, chronic empyema, poor health, exhaustion and cold plus over-strain, and the gradual onset of aphonia following fatigue, chilling or heat in the trenches, are among the precipitating conditions mentioned. Froeschels (*10*) stated that 50 per cent of the patients attributed their condition to cold and 20 per cent to violent disturbances.

Some authors stressed the existence of a personal predisposition or an hereditary trend toward nervous affliction. Liébault (*29*) quoted Noiret as having found in cases of shell shock 33 per cent with hereditary antecedents and 56 per cent with personal antecedents; Grasset is stated to have

established similar findings in his observations of deaf mutism. Gradenigo (*15*) found a nervous predisposition in a majority in his cases of functional aphonia. On the contrary, according to Harms (*21*), only a small percentage of speech and voice disorders showed indications of weak nervous systems and hereditary neuropathic afflictions. Donath (*9*) likewise was of the opinion that the majority of speech and voice disorders accompanying war neuroses could not be traced to an earlier existing nervous condition or hereditary factors, the exhaustion and privations brought on by the war being enough to account for the afflictions. He stated that speech disorders were readily caused by psychic injuries but that voice disorders seldom were generated from this cause. Hirschfeld (*23*) found heredity to play no part, but believed that previous history of nervous headaches, dizziness, migraine, fear and irritability was frequently found.

Symptomatology. The recorded symptomatology of voice disorders is as varied as the etiology. The signs generally included deviations in the laryngological picture, respiratory abnormalities, and indications of emotional disturbances.

The effects of gas on the speech organs were described as intense inflammation of the larynx, pharynx, trachea and larger bronchi. The appearance was that of acute laryngitis, swelling and mucopurulent secretions accompanied by sensations of dryness and tension in the pharynx and a short but frequent hacking cough. The voice was husky and gradually grew worse, finally ending in a whisper. The latter symptom was attributed by Hurst and Gill (*24*) to a protective reflex to avoid pain. Ryland (*50*) stated that the laryngoscopic symptoms induced by mustard gas showed engorgement of the blood vessels and narcosis of the epithelium, with aphonia and myopathic paresis occuring in nearly all cases.

According to Liébault (*29*), the laryngeal picture in functional disorders of voice showed two kinds of lesions: one, a neuropathic lesion bearing on the functions of muscles; and the other, irritative lesions due to fatigue, misuse or over-use accompanied by redness and swelling. In the latter, the ventricular bands hid the true vocal folds giving the impression that the patient was speaking with the ventricular bands. In the neuropathic lesions he found paralysis of the abductors (the ventricular bands acting vicariously in these cases), incomplete closure of the glottis through paralysis of the inter-arytenoids, and paralysis of the thyro-arytenoids so that the glottal orifice had an irregular shape.

Smurthwaite (*52*) described four recognizable conditions of the cords in attempted phonation in hysterical aphonia: (1) a glottis of approximately elliptical form, indicating a paresis of the thyro-arytenoideus internus, (2) the cords could be freely abducted but remained in the cadaverous position and showed no attempt at adduction, (3) a spasm of the abductor and constrictor muscles of the larynx so that both the true and false cords were pressed tightly together, and (4) the vocal cords approximated in the anterior two-thirds, leaving a triangular space in the posterior one-third, indicative of paresis of the inter-arytenoid muscles. He frequently observed the false vocal folds in approximation in cases of aphonia.

Amersbach (*1*) found bilateral paralysis to be always present in these cases. Froeschels (*10*) found the glottis to assume various forms, but believed that the inflammation present was not the cause of the aphonia but rather was due to the abnormal movements of the larynx in these patients. Barth (*3*) also stated that the inflammation might be secondary to misuse.

The relationship between respiratory excursions and the functional voice disorders was of particular interest to certain French and English observers. Hurst and Gill (*24*) found a respiratory excursion subnormal in all cases as tested by spirometric examinations. Liébault (*29*) attached great importance to abnormality of diaphragmatic function. He observed that in aphonic patients inspiration was short, shallow, jerky and incomplete. Expiration showed a similar picture. The diaphragmatic excursion was diminished, and the patient exhibited extreme effort involving the accessory muscles of breathing. [See also Liébault and Coissard (*30*).] Sollier and Chartier (*53*) observed respiratory difficulties in which the thoracic perimeter did not vary more than two or three centimeters. Voice improved as the breathing gradually returned to normal.

The nervous symptoms frequently found to accompany functional aphonias included slow thought processes, difficulty in fixing attention, quick fatigue of attention, suicidal ideas, persecution complexes, sensory difficulties, anesthesia, hyperesthesia, vasomotor disturbances and changes in the laryngo-pharyngeal sensitivity. Liébault (*29*) stated that cases not responding to treatment almost always showed anesthesia of the pharynx, which diminished as the voice returned. He cited Grasset as having frequently noted absence of sleep as a concomitant symptom. Liébault found that lesions of the sensory motor apparatus might be present, but were not consistently demonstrable. He referred to Mairet's statement that difficulties of mental imagery were frequently found in these cases, but Liébault himself found no such cases. Hurst and Gill (*24*) believed pharyngeal anesthesia to be no more characteristic of hysterical aphonia than any other hysterical symptom. These authors stated that the pharyngeal anesthesia was usually implanted by the suggestion of the observer.

Vocal symptoms of these disorders were not described in detail. Liébault (*29*) found the voice weak following shock. Hoarseness was present, and the voice was strong only when the patient made a great effort. The patient fatigued quickly. Vocal signs were described by Hurst and Gill (*24*) as a stage in the recovery from mutism. In the progressive development of the symptoms there was an effort phase in which aphonia was complete, but the patient tried and succeeded in making a few explosive syllables; this was followed by a second phase in which words returned, but the voice was whispered and hoarse, although clear in the morning when the patient was rested. The voice might be eunuchoid at first but later became normal.

The problem of accurate diagnosis of disorders of voice was oftentimes found to be a difficult one. The symptoms of barely discernable organic lesions were difficult to distinguish from functional disorders or from malingering. Donath (*9*) observed that functional disorders did not necessarily develop suddenly but that sudden cure was infallible proof of the functional nature of the disease. He

distinguished two types of traumatic neurosis affecting vocal function, the first psychogenic, and the second due to mechanical shock to the nervous system. Gradenigo (*15*) found that hysterical patients showed true anesthesia, and that they had no paralysis except for voluntary movements in the performance of definite functions such as talking. Smurthwaite (*52*) considered as a diagnostic sign of organic lesions (nerve or otherwise) the inability of the patient to cough. In his opinion, if the patient was unable to phonate but could cough normally, the physician was dealing with some form of abductor paralysis, usually of a functional nature. It was necessary, however, to exclude the possibility of tuberculosis.

Routine laryngeal examinations were regarded by Liébault (*29*) as of extreme importance in the diagnosis of aphonia. Laryngoscopic examination was said to be impossible in the case of mutism but could be performed in the aphonic patient. Paralysis of the constrictors was uniformly found. Hurst and Gill (*24*) as cited above, denied the universal value of a laryngoscopic examination and stated that it might even be harmful in that it could inspire the patient to doubt the possibility of his recovery.

Liébault and Coissard (*30*) and others stressed the need for an adequate examination of breathing. This should consist of a determination of vital capacity, kymographic or radiographic examinations of the type of breathing, observations of the force and length of expiration, and the construction of a chart on which to record these factors each week during treatment.

René-Celles and Girard (*48*) distinguished two types of functional aphonia, a paretic and a psychic. The first showed paralysis of the vocal folds joining imperfectly in the midline. The second type presented no special abnormal appearance of the larynx, but was due to an inhibition of central origin and was very amenable to reeducation. They stressed the need to rule out simulators, but did not suggest the necessary criteria for their identification. Pollak (*45*) distinguished two types: the paralytic and the spastic, the paralytic form being the more common. In this condition the vocal folds showed abnormally reduced tension and in phonation approached the median line but did not completely close the glottis. In the spastic form the vocal bands are drawn spastically together.

Liébault (*29*) found in aphonic cases under his care two types of motor difficulty, complex and simple. In the simple type, there was diminished vital capacity and paralysis of the glottis. The complex form showed motor incoordination of the diaphragm, tongue and lips with absurd, bizarre and spasmodic movements accompanied by emotional and neuropathic elements. He believed that the difficulty in these cases was essentially of a motor order. Milligan and Westmacott (*37*) referred to cases of concussion in which the sudden loss of speech was not due to hysterical causes but to a sudden arrest of volitional impulses necessary for the production of speech. No paresis of the abductor was observed as in true cases of hysterical aphonia, but these patients were found to lack completely the ability to put the vocal cords in motion. These cases were found to improve on a therapy of rest, strychnine and 'a judicious mixture of auto suggestion and encouragement.'

Differentiation of mutism and aphonia was stated by Mott (*39*) to be possible on the basis that 'aphonia represents a partial paralysis of the abductor muscles with the power of whispering preserved whereas the mute lacks the ability for specialized movements needed for articulation of words . . .'

Treatment and Prognosis. Although the treatment of functional aphonia and dysphonia was not standardized, it is possible to state certain broadly defined categories under which the main types of treatment may be considered. For the most part, the therapists used some form of psychotherapy, vocal exercise, mechanical or electrical stimulation, or a combination of two or more of these treatments. In the majority of instances, it was claimed that the results of the treatment were obtained fairly rapidly. The slowest method appears to have been that of systematic vocal exercises in which no form of psychotherapy was intentionally employed.

Several authors claimed that it was important to provide a general treatment preliminary to special psychotherapy. Hurst and Gill (*24*) attempted to maintain 'an atmosphere of cure,' showing to patients under treatment others already cured or being cured. They did not find it necessary to forbid or limit smoking or drinking, or to give sedatives. Milligan (*36*) and Grant (*16*) emphasized the need for rest. Liébault (*29*) prescribed general hygiene, a calm life, hydrotherapy and calming medication. Nadoleczny (*42*) recommended various methods of psychotherapy which were to be carried on in connection with a general program in which the patient was not permitted to smoke and was allowed no entertainment. He recommended the use of suggestion in an isolated room and that the rest of the treatment be adjusted to the patient. Hypnosis, Muck's treatment, Baranay's procedure and Kaufmann's procedure with faradic current were all considered by most authors to be useful. Only one sitting under this therapy was necessary for cure.

Guillain (*17*) stressed the need for prompt treatment by psychotherapy at the front. He was distinctly opposed to the patient's being evacuated to the rear before treatment. He found that the results were much more satisfactory and more promptly achieved if the patient was treated immediately and near the scene of the trauma.

Some form of electrical treatment was rather widely used. Marage (*32*) used a battery on a patient who was bilaterally deaf, aphonic and paralyzed. He obtained successful results after failure by hypnosis. In general, he recommended therapy by countershock combined with rest, massage or anesthesia. Scholz (*51*) applied electricity externally and asked the patient to cough in full voice. After several days the patients were able to pronounce vowels and single words. Although the patients fatigued easily, cure was usually effected within three weeks. In treating aphonia, Pollak (*45*) employed a method already used by Urbantschitsch (*56*) in curing deaf-mutism. This consisted of a shock-like stimulus and infliction of pain, which overwhelmed the psyche and prevented interference with the normal innervation of phonation. He believed that this method also had an advantage in that it did not depend upon the suggestive influence of the physician's personality, so that even the non-specialist could use electrical

treatment successfully. Amersbach (*1*) used faradization and brief etherization in restoring voice. Froeschels (*10*) used faradization with one pole placed intralaryngeally and the other placed on an area of the thyroid cartilage. In some cases both poles were placed on the thyroid cartilage externally. In case of failure on the first attempt, stronger current and repeated attempts are recommended. Out of 70 cases treated, 37 were cured by faradization alone and 13 were improved. The author warned, however, that a relapse might occur in these cases. Tilley (*54*) used intralaryngeal faradic shock successfully. Barth (*3*) stated that faradization was the most widely used therapy for war aphonia. Although Barth did not approve of the Kaufmann method, he described it as including four steps in treatment: (1) suggestive preparation of the patient by the physician, (2) application of a powerful electric current to any region except directly on the larynx, (3) the use of suggestion in the form of commands given in sharp, military fashion, and (4) that the cure should be obtained in one sitting. Harms (*21*) used hypnosis and Kaufmann's treatment.

Narcosis was recommended by several authors for the treatment of aphonia and mutism. With reference to aphonia, Moriondo (*38*) advised the use of ether or chloroform for cases of a psychic or hysterical origin. Massei (*34*) used ether and thereby achieved cure of three cases of aphonia. Eight cases, however, were not cured, and he warned against overoptimism regarding this method.

Occasional reference was made to the use of a mechanical stimulus to bring about restoration of voice. Muck (*41*) devised a metal ball on the end of a rod. In the treatment of aphonia, the ball was introduced into the larynx and sharp pressure applied against the posterior commissure. O'Malley (*43*) found that four out of six cases recovered speech when asked to phonate with the laryngeal mirror *in situ* for examination. The other two required the assistance of mild faradic current for successful recovery.

Donath (*9*) advised psychotherapy adapted to individualized methods. [See also Gradenigo (*15*).] Mott (*39*) cured his patients by suggestion, hypnotism and intense emotion. Hirschfeld (*23*) combined suggestion and faradic current. Lange (*27*) stated that important prognostic differences were to be found between flaccid and spastic aphonia. Eighty per cent of the former were cured by suggestion combined with faradic current, but cases in the second category improved very slowly. Pape (*44*) reported six cases of hoarseness, whisper voice, or complete aphonia, all but one of which recovered phonation spontaneously.

Many authors were of the opinion that a combination of psychotherapy and treatment by voice exercises gave the best results. Hurst and Gill (*24*) in an elaboration of their program of treatment referred to above, stated their procedure as follows: The physician interviewed the patient and assured him of cure. Belief in a favorable prognosis for his own affliction was encouraged by allowing the patient to meet other patients who had been cured of the same affliction. It was regarded as advisable but not essential to treat the patient in a private room. He was made comfortable and then the physician explained the loss of voice on the basis that the

patient had merely forgotten how to use it. He was told that he started to whisper merely to save pain after the gassing. Since there was no longer any need for him to avoid pain in this way, the patient was then asked to cough. His attention was drawn to the naturalness of the cough, and it was explained that voice and coughing are produced in the same way. The patient was asked to say 'One' immediately after coughing. If the request was successfully complied with, the patient was then encouraged to talk in a natural voice. If the voice was hoarse or falsetto, he was reeducated until normal voice returned. If stuttering occured, reeducation and persuasion were used to eliminate the stuttering. If the patient was unable to talk, it was advised that the physician tickle the throat or ask the patient to gargle. Manipulation of the glottis was sometimes necessary. Time required for cure by this means was about three-fourths of an hour.

Liébault (*29*) advised a course of treatment described below in which coordination of the breathing and phonatory and resonating mechanisms was achieved. The respiratory training included gymnastic exercises with the arms, weight-lifting apparatus and dumb-bells, and the teaching of diaphragmatic control. For this control the patient lay down and the physician pressed on the epigastric region in rhythm with breathing. Kymographic and spirometric tests were given each week to check the progress of the patient. [See also Liébault and Coissard (*30*) and Moure, et al (*40*).] The patient was instructed in the theoretical background of breath control. Education of the resonators consisted of exercises to establish control of lips, tongue, and face. Voice placement was stressed. For retraining of the larynx, the patient was relaxed so as to avoid tension in the throat. He was instructed to make a sound at the beginning of full inspiration. Vibratory massage was recommended together with manipulation of the larynx with the patient's head lowered to keep the larynx from being elevated abnormally. Vowel drills on [o] and [i] were used once the patient had produced vocal tone. This was followed by reading drills. The author stressed the need for making the exercises methodical and progressive. Liébault and Coissard (*30*) stated two principles: (1) obtain phonation and (2) make it habitual. They also stated the vowel order in which they achieved the greatest success. They recommended the use of a sustained tone in voice training and the use of the glottal attack.

Gault (*13*) recommended the use of voice exercises and mental hygiene. In instituting the exercises a mirror was thrust into the throat and the patient was asked to say [e], [i], [aɪ], [o], [ju] and nonsense syllables. This was followed by reading aloud, speaking and singing. Breathing exercises were also used. Curshmann (7) recommended Heyse's method of treatment by singing after suggestion (with faradization, massage, etc.). The patient was told to hum consonants after taking a deep breath and to follow the consonants by an explosively pronounced vowel. If a voiced vowel was produced by this means, the rest of the training was easy. Smurthwaite (*52*) recommended moral persuasion, deep breathing, forced expiration and systematic voice exercises to give the vocal folds tone and to give confidence to the patient. He found that breathing exercises were useful for both the

paretic and spastic forms of aphonia. Out of 239 cases, all but 11 recovered by the above treatment.

Mignard and Gilles (*35*) used artificial respiration for restoration of voice, to be followed by ordinary psychotherapeutic management. René-Celles and Girard (*48*) sought to encourage the patient by making him feel that the affliction was benign. They stressed the need of ruling out tuberculosis of the larynx as a pathogenic factor. They recommended then that the pupil be studied as an individual and that the nature of the voice and vocal mechanisms be explained to him. Voice training and placement and massage were considered to be valuable. Counting and conjugation of verbs were also used during the latter part of the treatment. It was recommended that treatment be carried on for 15 days after which time the patient could be returned to the army.

Several therapists apparently were able to make successful use of techniques of vocal reeducation in which no conscious attempt was made to introduce psychotherapy. Grant (*16*) [see Milligan (*36*)] recommended retraining as in the case of deaf mutes. The patient's hand was placed on the larynx of the physician. The patient was taught, along with proper breathing, how to shape his mouth in various contours necessary for the production of speech sounds. Although the time required for treatment was sometimes long, Grant had no failures, and regarded this method as superior to those in which painful treatments were employed. Garel (*12*) used voice exercises on one patient and achieved satisfactory results as long as the patient was in the presence of the physician, but he discovered that outside of the lesson period, the patient was unable to maintain his improvement. He believed that the aphonia was due to lack of breath pressure. Marx (*33*) regulated breathing, gave voice exercises and employed light pressure on the larynx during the first attempts to promote phonation. Fifty-three out of 56 cases were cured by this means. Kaess (*25*, *26*) used methods similar to those of Marx, but relied somewhat more upon compression of the larynx. He cured 12 cases in a few weeks, and found that a period of three-quarters of an hour to two days was required for each case. In his opinion, the use of faradic current did not speed the process of recovery. Boettger (*5*) recommended the use of vigorous artificial breathing and phonatory retraining for the cure of functional aphonia. Brueggemann (*6*) was successful in the use of breathing and voice exercises.

Barth (*3*) introduced a laryngoscope into the throat and gave breathing exercises and phonation drills. He made an attempt to reawaken in the patient a memory for phonatory coordination. The use of local anesthesia in the pharynx or larynx was helpful in stubborn cases. In failure of these methods, he recommended that endolaryngeal faradization with weak currents be employed. He found that the symptoms of aphonia might change to various types of dysphonia. By his method of treatment, he cured 90 to 95 per cent of 250 cases, three-fourths of them in one sitting. In his opinion, narcosis, hypnosis and pretended operation failed in cases in which phonetic reeducation also failed. Cases of deepseated psychic disturbances were considered to be within the province of the psychiatrist. The use of a deafening stimulus in the ears was regarded as useless. It was his observation that the number of aph-

onias became rarer toward the end of the war, and that at this time even the stubborn cases became more amenable to treatment.

The results of the above methods of treatment were not always given but most authors reported success with the majority of their cases. Prognosis was usually said to be good. Hurst and Gill (*24*) treated 239 cases and had only 11 failures. Liébault and Coissard (*30*) treated 45 out of 82 cases successfully. Twenty-four cases showed complete failure and 13 were still under treatment. All of their failures were 'complicated aphonias' or aphonias of long standing in whom there was 'a poor attitude.' Nadoleczny (*42*) achieved successful results in 96 per cent of his cases through abolition of the hysterical symptoms. His method of treatment was successful also in one case of a wound in the larynx with injury to the recurrent nerve. With but few exceptions his patients returned to active duty.

Liébault (*29*) and Hurst and Gill (*24*) recommended that the cases be returned to active duty at once. Three weeks' observation was recommended by Hurst and Gill for cases of long standing. No subsequent treatment was considered necessary. Liébault recommended prompt treatment and stated that the return of voice was closely related to return to normalcy of the function of breathing. He stated that these were nervous patients in whom irritability and fatigue might persist and that relapses might occur, but that this was no reason for subjecting the patient to suspicion of malingering. Whereas many cases of functional aphonia recovered spontaneously, Barth (*3*) observed that some aphonias persisted at a period as late as one and one-half years after the end of the war.

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Graduate Theses In Speech And Hearing Disorders — 1950

Franklin H. Knower

THIS REPORT on graduate theses completed during the year of 1950 includes 161 titles from 37 institutions.[1] Twenty-eight of these titles are for doctorate dissertations and 133 are for some type of Master's thesis. Forty-six institutions have been reported in this series as having conferred graduate degrees with theses in the field of Speech and Hearing Disorders. Reports from nine colleges and universities are included for the first time. These institutions are: Emerson College, Indiana State Teachers College at Terre Haute, University of Nebraska, University of Oklahoma, Rockford College, University of Southern California, Southern Methodist University, University of Washington, and University of Wichita.

This report contains the list of institutions which have conferred graduate degrees with the type of degrees, names of recipients of degrees arranged alphabetically under each school, and the titles of the theses. An index of the content suggested by titles is also included. Many of the titles are indexed under more than one heading. All doctorate theses numbers in the index are followed by an asterisk.

[1]For the titles of theses in Speech and Hearing Disorders conferred before 1950 see the reports by the author in *Speech Monographs,* beginning with Volume II, 1935.

Franklin H. Knower (Ph.D., Minnesota, 1933) is Professor of Speech, Ohio State University.

Titles

University of Alabama

M.A. Thesis

1. Pass, Mary Florence. An Inquiry Into the Relationship Between Spelling and Articulatory Defects in High School Freshmen.

Boston University

M.A. Theses

2. Balch, R. T. An Analysis of Children's Fictional Literature for Material Suitable for Speech Correction and Speech Improvement.
3. Campbell, M. A Survey of Services for the Speech and Hearing Handicapped in New England.
4. Dunbar, A. A Survey of Services for the Speech and Hearing Handicapped in New England.
5. Farquhar, M. A Survey of Services for the Speech and Hearing Handicapped in New England.
6. Foster, H. A Survey of Services for the Speech and Hearing Handicapped in New England.
7. Kiley, M. A Survey of Services for the Speech and Hearing Handicapped in New England.
8. Mansur, R. W. The Construction of a Picture Test for Speech Sound Discrimination.
9. Roberts, R. A Survey of Services for the Speech and Hearing Handicapped in New England.
10. Ryan, E. A. A Series of Units Correlating Remedial Reading and Speech in Nashua Junior High School, Nashua, N. H.
11. Wallenius, W. The Partial Construction of a Teacher-administered Picture Type Articulation Test.

12. Weinberg, R. A Survey of Services for the Speech and Hearing Handicapped in New England.

Bowling Green State University

M.S. Theses

13. Crockett, Virginia A. A Survey of the Speech of 3808 Pupils in the Public Elementary Schools of Wood County to Determine the Number and Kind of Defects of an Articulatory Nature.
14. Freeman, Evelyn Gronberg. A Report of the Organization and Administration Together with Suggestions for the Improvement of a Four-week Program in Speech Therapy for Speech Handicapped Children Attending a Camp for Crippled Children.

Columbia University—Teachers College

Ph.D. Thesis

15. Mueller, Henry L. Patterns of Speech Faults.

Cornell University

M.A. Thesis

16. Conway, Lois Jane. Methods of Speech Correction for the Cerebral Palsied.

Denver University

M.A. Theses

17. Belk, Byrnes. The Mechanism of Speech—A Study of the Skeletal Muscular Structure.
18. Camp, Thomas C. An Exploratory Factorial Study of Three Projective Tests.
19. Carpenter, Vesta B. A Study of the Relation between Type of Hearing Loss and Results Obtained from Tests of Hearing.
20. Downing, Willard O. A Comparative Study of Two Different Methods of Inquiry on the Rorschach Test.
21. Bebhart, Dorothy L. A Study of Policies and Procedures of Four Selected Group Work Agencies for Integration of Minority and Majority Groups.
22. Grange, Robert O. An Investigation of the Attitudes of Employing Personnel toward Hiring People Who Stutter.
23. Harris, Willie Viola. Stories and Jingles Embodying Consonants and Consonant Blends.
24. Ingle, Neloese. Classification of Combined First and Second Grade Vocabulary According to the Northampton Vowel Chart.
25. Jackson, Bernard R. An on the Spot Survey of Stuttering Therapies with Considerations of Theories, the Organization of Speech Clinics and Speech Correction Curricula.
26. Jepkes, Martin Eugene. A Suggested Technique for a Group Test of Hearing Using Pure Tones: A Comparison with Individual Pure Tone Tests.
27. Johnson, Ronald C. A Study of Factors Related to the Delinquency of 50 Denver Boys.
28. Lande, Bernard. The Relationship between Reactions to Minority Groups Belonging and Personality Needs.
29. Lander, Madie F. An Original Radio Play for Parent Guidance Based on an Investigation of the Problem of Primary Stuttering.
30. Marro, Thomas David. An Experimental Study of the Effect of Audio-Visual Education on Attitudes towards Stuttering.
31. McAllister, John Gerald. Auditory Training: Suggested Materials for the Education of the Residual Hearing of the Hard of Hearing Child Who Has Developed Some Speech.
32. O'Connell, Max Henry. An Experimental Study—Binaural vs. Monaural Hearing at Suprathreshold Intensities.
33. Schaffer, Robert E. An Exploratory Study of Frustration Tolerance and Reactions to Frustrations in Juvenile Delinquents.

Ph.D. Theses

34. Hatcher, Caro C. Significant Factors to be Considered in a Curriculum of Speech Re-education in the Field of Cerebral Palsy.
35. Karraker, W. J. An Evaluation of the Source, Personality Guidance.

Emerson College

M.A. Thesis

36. Skenian, Ann Mary. The Importance of Co-operation between the Various Branches of Medicine, Dentistry, and Speech Therapy in the Restoration of Cleft Palate.

University of Florida

M.A. Theses

37. Adams, E. Beverly. The Therapeutic Value of Audio Aids and Speech Activities in a Public School Speech Correction Program.
38. Alexander, Elizabeth. An Experimental Study of the Effectiveness of the Administration of Thiamin Hydrochloride in Preventing Stuttering Among Pre-School Children.

39. Baxter, Kelmer D. The Development of a Library of Color Slides in Speech Science.

Florida State University

M.A. Thesis

40. Brice, Barbara C. A Pilot Study of the Relationship of Selected Voice Quality Deviations and Anxiety Level as Determined by the Thematic Apperception Test.

University of Hawaii

M.A. Thesis

41. Coleman, Floy Elizabeth. A Study of Lisping Among Freshmen at the University of Hawaii.

Indiana State Teachers College—Terre Haute

M.S. Theses

42. Cassell, Alfred Henry. A Survey as to the Probable Incidence of Educable Mentally Retarded Children in the State of Indiana.
43. Orr, Kenneth N. The Wechsler Intelligence Scale for Children as a Predictor of School Success.

M.A. Theses

State University of Iowa

44. Andrews, Benjamin Shakespeare. The Function of Field Clinics in Promoting a Program of Speech Re-education in Virginia.
45. Condon Sara Elizabeth. The Relationship of Parental Attitudes and Adjustments to the Development of Stuttering.
46. Houchin, Thomas Douglas. Selected Projects in Speech Correction.
47. Smith, George Agnew. A Motion Picture Study Comparing Lip and Jaw Movement and Area of Mouth Opening of Nasal and Non-nasal Speakers.
48. Staats, Lorin Coover, Jr. A Study of the Sense of Humor of Stutterers and Normal Speakers.
49. Williams, Norma Gail. An Investigation of Maladjustment to a Speaking Situation Shown by 7th, 8th, 9th and 10th Grade Students in a Secondary School.

Ph.D. Theses

50. Darley, Frederic Loudon. The Relationship of Parental Attitudes and Adjustments to the Development of Stuttering: I.
51. Jones, Elihu LeRoi. An Investigation of Stuttering in the Light of a Learned Behavior with Special Reference to Experimental Extinction and Spontaneous Recovery.

University of Kansas

M.A. Theses

52. Courtney, Marjorie S. A Phonetic Analysis of 100 Samples of Kansas Speech.
53. Drennen, Nina L. A Speech Correction Program for the Rural Schools of Douglas County, Kansas.

Kent State University

M.A. Theses

54. Berger, Mildred. Survey of Speech Correction in Sarasota County, Florida.
55. Smith, Doris. The frequency of the [r] Substitution and Level of Its Most Frequent Occurrence.

Louisiana State University

M.A. Thesis

56. Sleeper, Anna Elizabeth. A Developmental Survey of Speech Correction in New Orleans.

Ph.D. Thesis

57. Harrington, Donald Anson. An Experimental Study of the Subjective and Objective Characteristics of Sustained Vowels at High Pitches.

University of Michigan

M.A. Theses

58. Battin, Rosabell Ray. An Investigation of the Possible Relationship between RH - Blood Incompatibility and the Incidence of Cleft Lip and Cleft Palate.
59. Berlinsky, Stanley. An Exploratory Analysis of the Characteristics of 25 'Successful' Stutterers.
60. Deuel, Jessimae. A Quantitative Analysis of Speech Problems in Branch-Calhoun County, Michigan.
61. Gaulrapp, Rev. Leo J. A Comparative Study of the Causes and Remedies for Voice Intensity Problems.
62. Slavouski, Vivienne. An Investigation of the Coincidence of Cleft Palate and Mental Deficiency with Special Reference to 'Solitary' and 'Hereditary' Cases.
63. Wortley, John S. Is the Use of Progressive Relaxation an Effective Therapeutic Device?

M.S. Thesis

64. Bloom, Jack. An Experiment to Determine the Presence of Acoustic Cues in the Vowels Which Identify Familiar Speakers.

Ph.D. Thesis

65. Morley, Dourossoff Edmund. An Analysis by the Sound Spectrograph of Intelligibility Variations of Consonant Sounds Spoken by Deaf Persons.

Michigan State College

M.A. Theses

66. Alonso, Lulu Johnson. Theories, Specific Therapies and Techniques for Use in Cases of Stuttering.
67. Carveth, Richard Redin. A Phonographic Study of the Phonetic Deviations of Chinese Students in the Pronuciation of Sounds of the English Language.
68. Choiniere, Robert Lee. A Survey of Speech Therapies for the Cerebral Palsied.
69. Dean, Martin James. A Study of Some Personality Aspects of Deaf Adolescents.

University of Missouri

M.A. Thesis

70. Fraser, Albert Allan. A Test of Pitch Discrimination for Vocal Tones.

University of Nebraska

M.A. Theses

71. Cattle, Sara F. Teaching Foreign Students Oral English Through the Phonetic Approach.
72. Hohensee, Margie M. Teacher Training of Speech and Hearing Therapists.
73. Sorensen, Mary B. Selections from *Revised Seashore Tests of Musical Aptitude* in Hearing Aid Fitting.

Northwestern University

M.A. Theses

74. Miller, Tommy. A Preliminary Investigation into the Construction of a Theoretical Scale of Specificity.
75. Raab, Sister Mary Bertrand. A Program for the Pre-School Deaf Child with Special Emphasis for Catholic Schools.
76. Treacy, Lorraine. A Study of Social Maturity in Relation to Factors of Intelligence in Acoustically Handicapped Children.

Ph.D. Theses

77. Baisler, Perry E. A Study of Intra-Laryngeal Activity During Production of Voice in Normal and Falsetto Registers.
78. Fletcher, William Wayne. A Study of Internal Laryngeal Activity in Relation to Vocal Intensity.
79. Kester, Dorothy Gertrude. The Development of Speech Correction in the United States in the First Quarter of the Twentieth Century.
80. Miller, William E. Phonemic Discrimination of Normal and Perceptively Deafened Listeners in Quiet and in Noise.
81. McConnell, Freeman E. Influence of Fenestration Surgery on Bone Conduction Acuity.
82. Shutts, Ross Edwin. Differential Sensitivity to Frequency Change in the Perceptively Deafened Adult.

Ohio State University

M.A. Theses

83. Carlton, Robert L. Some Effects of Regressive Electro-Convulsive Shock Therapy on the Speech of Psychotic Patients.
84. Hansen, Ronald Gordon. An Experimental Investigation of the Effects of Different Rates of Speaking On Intelligibility.
85. Hyman, Melvin. The Intensity and Duration of the Speech of Normal Children and Selected Types of Cerebral Palsied Children in the Repetition of Heard Phrases.
86. Luper, Harold Lee. A Study of the Relationship between Stuttering Adaptation and Improvement During Speech Therapy.
87. Neely, Keith Kent. A Study to Determine the Relative Knowledge of Selected Groups about Stuttering.
88. Peters, Robert William. A Comparative Study of the Hearing Acuity of Cerebral Palsied and Normal Children.
89. Pollikoff, Francine Hyman. An Experimental Study in the Planning, Administering, and Measuring the Results of a Voice and Diction Course for College Students.
90. Reams, Mary Hazel. An Experimental Study Comparing the Visual Accompaniments of Word Identification and the Auditory Experience of Word Intelligibility.

91. Slaight, Elizabeth Anne. An Objective Evaluation of a Program of Speech Therapy for Cleft-Palate Children.
92. Walker, Crayton. The Intrinsic Intensity of Oral Phrases.
93. Weaver, Carl Harold. An Investigation of Hearing Aids Worn by School Children with Respect to the Relation of Hearing Loss, Sex, and Gain in Speech Reception to the Amount of Time the Aid is Worn Each Day, and with Respect to Decay of Residual Hearing.

Ph.D. Theses

94. Anderson, John O'Deen. A Descriptive Study of Elements of Esophageal Speech.
95. Atkinson, Chester Joseph. A Study of Vocal Responses During Controlled Aural Stimulation.
96. Calvert, James Jenkins. Verbal Behavior as a Predictor of Personality.

University of Oklahoma

M.A. Thesis

97. Walcher, Helen Ross. A Study of the Adams-Lepley Personal Audit Scores Made by Parents of Children with Cerebral Palsy and Their Controls.

University of Oregon

M.A. Theses

98. Huntley, Alyce J. A Study of the Principles, Techniques and Materials of Play Therapy and Their Application to Clinical Speech Correction.
99. Newholm, Ardis. An Exploratory Study of Some of the Attitudes of Speech Clinicians toward Speech Defective Cases.

College of the Pacific

M.A. Thesis

100. Ropolo, Margaret. An Investigation of Parental Influence on the Speech Development of Children.

University of Pittsburgh

M.S. Theses

101. Flamenbaum, Mildred. Construction and Application of a Scale to Measure Attitude Toward a Passage of Speech Containing Voluntary Non-Fluency.
102. McWilliams, Betty Jane. The Effect of Speech Improvement Activities Upon Consonant Articulation in Kindergarten Children.
103. Rankin, Wilbert Earl. The Study of a Group Speech-Hearing Screen Test for Pre-School Age Children.
104. Ruggieri, Mary Kiddie. The Effect of a Speech Improvement Project on Consonant Articulation in Four Pittsburgh Kindergartens.

Purdue University

M.S. Theses

105. Bearss, Loyal M. An Investigation of Conflict in Stutterers and Non-Stutterers.
106. Donewald, Marian H. Relation of Speech Sound Discrimination to Functional Articulatory Defects in Children.
107. Doyne, Marcella Pepper. Studies in Speech Reception Testing.

Ph.D. Theses

108. Draegert, Gayland L. Relationship Between Voice Variables and Speech Intelligibility in High Level Noise.
109. Shaffer, George L. Listening Ability as Related to Duration of Exposure to High Level Noise.
110. Wilson, Kenneth D. Speech Intelligibility Related to Psychomotor Activity in High Level Noise.

Rockford College

M.A. Thesis

111. Simon, Joanna. Etiological Factors and Familial Incidence in 100 Cases of Facial Clefts.

University of Southern California

M.A. Thesis

112. Fothergill, Patti Murray. An Investigation of Breathing Patterns in a Selected Cerebral Palsy Population.

Ph.D. Theses

113. Haney, Harold Russell. Motives Implied by the Act of Stuttering as Revealed by Prolonged Experimental Projection.
114. Harris, Lester Lee. A Clinical Study of Nine Stuttering Children in Group Psychotherapy.
115. Holtzman, Paul Douglas. An Experimental Study of Some Relationships Among Several Indices of Stage Fright and Personality.
116. Kniseley, Wade Allen. An Investigation of the Phenomenon of Stage Fright in Certain Prominent Speakers.
117. Lassman, Frank Maurice. A Clinical Investigation of Hearing Deficiencies and Some Possible Etiological Factors in a Group of Cerebral Palsied Individuals.
118. Prall, Caleb William. An Experimental Study of the Measurement of Certain

Aspects of Stage Fright by Means of Rating Scale and Motion Picture Techniques.

119. Wiley, John Herbert. A Scale to Measure Parental Attitudes Toward Certain Aspects of Children's Behavior.
120. Wilson, Donald Murray. A Study of the Personalities of Stuttering Children and Their Parents as Revealed Through Projection Tests.

Southern Methodist University

M.A. Theses

121. Crow, Porter Jackson, Standardization of American Speech: Reflected by One Texas Family of Five Generations.
122. Lane, Mary Louise. A Study of Speech and Speech Defects in American Schools for the Blind.
123. Tharp, James. Physiological Approach to the Development of Resonance in the Phonological Mechanism.

Syracuse University

M.A. Thesis

124. Matthews, Betty Ann. Therapy for Children Who Stutter; an Investigation of a Therapy which Utilizes the Group Situation.

University of Texas

M.Ed. Theses

125. Barthelow, Carolyn. A Study of the Relationship of Speech Intelligibility to Hearing Loss.
126. Bryson, Betty Dean. An Evaluation of Special Education by Superintendents of Texas Public Schools.
127. Carrow, Sister Mary Arthur. A Survey of the Speech and Hearing Problems of the Catholic Elementary School Children in Austin, Texas.
128. Clark, Pauline Stevenson. The Development of a Visible Phonetic Approach to Speech Sound Production.
129. Culbreath, Cleo Smyth. A Survey of Means of Communication Used by Former Students of the Texas School for the Deaf.
130. Holden, Albert Nash. An Evaluation of the Social Orientation of Stutterers.
131. Ragsdale, Ruth Norman. Adjustments of Post-polio Children.
132. Roberts, Charles Douglas. The Incidence of Color-Blindness Among 50 Stutterers.
133. Rose, Perle Elizabeth. The Use of Projected Materials in Teaching Beginning Reading to Deaf Children.
134. Stephens, Mary Elizabeth. Problems Pertaining to the Training and Certification of Teachers of Exceptional Children in Texas.
135. Vanhoove, Donna Booch Robertson. A Survey of Speech Defects in Four White Elementary Schools of Austin, Texas.
136. Willingham, Bernardine. Science for Youth in Schools for the Deaf.

Texas State College for Women

M.A. Thesis

137. Hagens, Mary Love Appleby. A Study to Determine the Relationship Between Certain Aspects of Speech and the Threshold of Hearing.

University of Utah

M.S. Thesis

138. Low, Gordon Morris. The Relation of Psychometric Factors to Stage Fright.

University of Virginia

M.A. Theses

139. Goda, Sidney. Analysis and Evaluations of State Hearing Conservation Programs in United States with Possible Application to a Program for the State of Virginia.
140. Herndon, Jane Neal. A Compilation and Critical Evaluation of Reading Materials to be Used in the Therapy with Primary Children with Articulatory Defects.
141. Troeller, Robert Burl. An Experimental Study of the Intensity of the Vibration of the Bony Framework of the Chest During the Sounding of Vowels.
142. Wilson, Elizabeth Kearny. The effect of Maturation on Functional Articulatory Defects in the Elementary School.

University of Washington

M.A. Theses

143. Dawson, Warren Robert. A Comparative Audiometric Study of Ground Crew Men and Pilots.
144. Gannon, Joseph. A Study of the Effect of Certain Surgical Variables on the Auditory Acuity of Fifty Cleft Palate Children.
145. Godchaux, Harold Barnett. Frequency and Kind of Sound Substitutions, Omissions, and Additions in Children Ages Three to Six.
146. Palmer, John Milton. A Comparative Study of Goldstein's Concept Regarding the Development and Disintegration of Speech Sounds and the Data Reported by Other Authors.

147. Poorman, Florence. A Comparison of the Effects of Contralateral Masking on Thresholds of Monaural Conductive and Perceptive Hearing Losses.
148. Rosser, Paul Fredrick. A High Speed Motion Picture Study of Certain Vocal Fold Phenomena During a Six Note Rise in Pitch.

Whittier College

M.A. Theses

149. Moore, Betty Webster. A Summary of Techniques, Used by a Mother, in Teaching a Brain Injured Child.
150. Stanford, Roy. An Experimental Study of the Validity and Usability of a Group Free Field Test of Hearing in the Public Schools.

University of Wichita

M.A. Theses

151. Hedges, Thayne. The Effect of Auditory Stimuli Presented During the Sleep of Children with Delayed Speech.
152. Lewis, Dorothy D. A Study in the Measurement of Individual Progress in a Pre-school Group of Cerebral Palsied Children.
153. Reiter, Richard M. A Comparison of the Birth Conditions of Stutterers and Cerebral Palsied.
154. Wooster, Velma T. A Co-twin Study of Differential Procedures in the Correction of Articulatory Defects.

University of Wisconsin

M.A. Theses

155. Johnson, Paul Olaf. The Use of Audio-Visual Aids in Improving Voice and Pronunciation.
156. Schutz, Angeline Cecelia. An Analysis of the Hearing Conservation Program Conducted in Rock County, Wisconsin.
157. Walsvik, Orvin Edgar. The Comparison of Resonance of the Normal and Abnormal Ear.
158. Zaner, Annette Ruth. Speech Defects Noted Among Amputees.

M.S. Theses

159. Kavanagh, James Francis. A Comparison of the Aphasic and Schizophrenic Syndromes in Children.
160. Smith, Vernon Jerome. A Simplified Procedure for the Fitting of Hearing Aids, Utilizing a Minimum of Equipment.

Ph.D. Thesis

161. Sands, Mary Kathleen. The Acoustic Foundations of the Length and Diameter of the Canal of Hearing-Aid Couplers.

Index

Amputees: 158.

Articulation: Chinese 67; consonants 23, 65*; discrimination 106; effects of improvement 102; Goldstein's concept of 146; Kansas 52; lisping 41; maturity and 142; production of 128, 145, 146; [r] substitutions 55; and spelling 1; standardization 121; test 11; therapy 140, 154, 155; vowels 24.

Cerebral palsied: 16, 34*, 85, 88, 149*, 159; breathing 112; hearing 117*; progress in 152; and stuttering 153; tests 97.

Cleft palate: 36; etiology 111; hearing 144; and heredity 62, 111; methods 91; and RH blood 58.

Clinician's attitudes: 99.

Delayed speech: 151.

Esophageal speech: 94*.

Hearing: aids 93, 160, 161*; cerebral palsied 88; and cleft palate 144; conservation program for 139, 156; consonant articulation 65*; deaf communication 129; discrimination 80*, 82*, 106; fenestration surgery 81*; and intelligibility 125; and personality 69, 76; and science teaching 136; testing 19, 26, 32, 73, 103, 147, 150; thresholds 137; training material 31, 133; types of loss 19, 32, 117*, 147.

History: 79*.

Intelligibility: of ground crew and pilot 143; and hearing loss 125; and psychomotor activity 110*; and rate 84; and visual recognition 90; and voice variables 108*.

Lisping: 41.

Listening: 109*.

Methods: articulation 23, 102, 104, 140, 154; audio-visual 30, 37, 39, 155; camp 14; cerebral palsy 10, 34*, 68, 149; cleft palate 36, 91; co-twin control 154; electric shock 83; field clinics 44; group 114*, 124; hearing 31, 75, 133, 136; motion picture study 47; for parents of stutterers 29; phonetic 71; play therapy 98; progressive relaxation 63; projective 133; special education 126, 134; speech correction 2, 10, 46, 53, 98; for stutterers 25, 51*, 66, 86, 114*, 124; visual phonetic approach 128; voice 89; voice intensity 61.

Northampton vowel chart: 24.

Parents and: 29, 45, 100, 119*, 120*.

Personality: aphasic 159; and delinquency 27; electric shock therapy for 83; and frus-

tration 33; and group 21, 28; and guidance 35*; and hearing 69; intelligence 76; maladjustments 49; polio children 131; schizophrenia 159; social groups 76; stage fright 115*, 116*, 118*, 138; stutterers 105, 120*, 130; and verbal behavior 96*; and voice 40.

Phonetic: analysis 52; deviation 67; teaching 71.

Polio children: 131.

Speech defects: 15*; and hearing 137; skeletal muscular structure 17.

Stuttering: attitudes toward 22, 30, 45, 50*, 99; and cerebral palsied 153; and color blindness 132; conflicts and 105; knowledge about 87; motives for 113*; and parental guidance 29, 45, 120*; and sense of humor 48; social orientation in 130; successful 59; theories 25; therapies 25, 66, 86, 114*; thiamin hydrochloride for 38.

Surveys: Austin, Texas 127, 135; of the blind 122; Branch Calhoun County, Michigan 60; New England 3, 4, 5, 6, 7, 9, 12; New Orleans 56; mentally retarded 42; Sarasota County, Florida 54; Wood County, Ohio 13.

Teacher training: 72, 134.

Tests: Adams Lepley 97; attitudes 101, 119*; hearing 19, 26, 32, 73, 103; pitch discrimination 70; projective 18, 20, 40, 120*; scale construction for 74; Seashore 73; speech reception 107; sound discrimination 8; Wechsler 43.

Voice: breathing for 112; and consonants 65*; duration 84, 85; falsetto 77*; familiar speaker's 64; intensity 61, 78*, 85, 92, 114; methods 89, 155; nasality 47; personality 40; pitch 57, 77*, 82*, 148; resonance 123, 141, 157; responses 95*; variables 108*; vowels 57*.

Letter To The Editor

Dear Sir:

We write to call to your attention two new recorded tests, identified as Auditory Tests W-1 and W-2.[1] Prepared by Central Institute for the Deaf, with the collaboration of Technisonic Studios, they resemble the familiar Auditory Tests No. 9 and No. 14 of the Psycho-Acoustic Laboratory (Harvard). These recordings are intended for use with speech audiometers for determining the threshold for speech. The new tests differ from PAL Tests No. 9 and 14 in that the vocabulary is confined to very familiar words, suitable for children as well as adults, and also the pace is faster and more suitable for talk-back instead of write-down responses.

The test material in both W-1[2] and W-2 is a list of 36 spondaic words (like *baseball* and *railroad*) which were selected from the larger group used in Psycho-Acoustic Laboratory Auditory Tests No. 9 and No. 14. The particular words were chosen because they are familiar and because these particular recorded items proved experimentally to be equally intelligible. Six different scramblings of the same list of 36 words have been recorded on discs. The items in each scrambling are identical transcriptions from the same original. The scrambling was done by cutting and splicing the magnetic tape on which the transcriptions of the original were recorded.

In Auditory Test W-1 all of the words are recorded at a constant intensity and they monitor at approximately the same place on a VU meter. Each test word is introduced by the carrier phrase, 'Say the word.' The carrier phrase, and also the 1000 cps calibration tone on the inner band of every record, have been recorded approximately 10 db above the average level of the test words. Auditory Test W-1 is designed for use with a step-attenuator to obtain the greatest possible flexibility and speed in finding thresholds for speech.

Auditory Test W-2 is a 'descending level' test. The words in each of the lists are already attenuated on the record. After the first nine words the carrier phrases also start descending but they stay 6 db above the test words. The first group of words starts at the level of the calibration tone. Three words are at this level, the next three are down 3 db, the following three are down 6 db, and so on. Thus an average of 1 db attenuation per test word has been put into each list and each word that a listener repeats correctly lowers his threshold score by 1 db.

A subject's hearing loss for speech is defined as the number of decibels by which his threshold for speech is higher than the experimentally determined average threshold for a number of individuals whose hearing for pure tones in the speech range is within ± 5 db of the accepted norms for pure-tone audiometry. The value of the normal threshold for speech will vary not only with the particular sample of speech that is selected as test material but also with the equipment that is employed. Neither the apparatus for

[1]This work was initiated under Contract N6onr-272 (Project No. NR142-170, T. O. III) with the Office of Naval Research and completed under Contract V1001M-577 with the Veterans Administration.

[2]Means *W*ord Test Number *1*.

speech audiometry nor the recordings of test material have yet been standardized, either by the Council on Physical Medicine and Rehabilitation of the American Medical Association or by the American Standards Association. It is therefore essential for each operator to establish his own normal values for each type of test with his own equipment and under his own particular acoustic conditions. If the recommendations concerning apparatus that are given in the manual that accompanies the new recordings are followed, however, normal threshold values obtained at other clinics should not differ from our own by more than 2 or 3 decibels. Our tentative values for the normal thresholds of speech are 20 db re 0.0002 dyne per cm² for Test W-1 and 19 db re 0.0002 dyne per cm² for Test W-2. A more extensive study is in progress to determine whether the small difference between the two figures represents an advantage for the progressive attenuation employed in Test W-2 or whether it represents a difference in the two groups of individuals employed for the two tests.

According to our preliminary measurements, a speech audiometer that is calibrated for hearing loss should give a sound level of 20 db re 0.0002 dyne per cm² (measured in a National Bureau of Standards 9-A coupler) when the calibration tone is set to the reference level on the meter and with the hearing-loss dial at zero. Then the starting level indicated on the hearing-loss dial minus the number of words of Test W-2 correctly repeated will give the listener's hearing loss for speech directly within an accuracy of ± 2 db. A tone of 1000 cps at 20 db above 0.0002 dyne per cm² (under a receiver on the ear or on a 9-A coupler) corresponds approximately to the 1000 cps tone delivered by a properly calibrated pure-tone audiometer at the 5 db hearing-loss setting. This relationship is reasonable because even the most intelligible words must be a few decibels above the threshold of detectability before they can be understood.

The Technisonic Studios made the original recordings of the test material and also have carried through the entire process of manufacture including the electroplating and pressing. The Technisonic Studios will also distribute the recordings, on a non-profit basis, at the following prices:

W-1 as a set. 3 double-faced 78 rpm records, each containing 2 lists of W-1, $10.50.

W-2 as a set. 3 double-faced 78 rpm records, each containing 2 lists of W-2, $10.50.

W-1 and W-2 as a set. 3 double-faced 33⅓ rpm records, $10.50.

Individual records from the 33⅓ rpm set may also be purchased, as follows:

1 double-faced 33⅓ rpm record containing 4 lists of W-1, $4.00.

1 double-faced 33⅓ rpm record containing 4 lists of W-2, $4.00.

1 double-faced 33⅓ rpm record containing 2 lists of W-1 on one face, 2 lists of W-2 on the other face, $4.00.

All recordings are on 12-inch discs.

The address of the Technisonic Studios is 1201 South Brentwood Boulevard, Richmond Heights 17, Missouri.

We hope that other laboratories and clinics that are interested in the standardization of speech audiometry will try these new recordings and communicate to us their criticisms and suggestions, and also any data that they obtain concerning the normal values for the thresholds of speech.

R. W. Benson
H. Davis
C. E. Harrison
I. J. Hirsh
E. G. Reynolds
S. R. Silverman

Book Reviews

CASS, MARION T. *Speech Habilitation in Cerebral Palsy*. New York: Columbia University Press, 1951. Pp. 212. $3.00.

Modern educational theory recognizes the need for considering the 'whole child' in relation to his entire setting. This point of view is surely no less true of the physically handicapped child. In fact, careful consideration of the 'whole' physically handicapped child often suggests that the best way of handling him is to give urgent attention to the basic causal factor for his handicapping condition. This book reemphasizes that the fundamental handicapping condition in cerebral palsy is neuromuscular; and when a speech disturbance is related directly to the neuromuscular involvement, therapy is primarily a matter of muscle reeducation.

The book opens with a short, sketchy discussion of early investigators of cerebral palsy. The second chapter presents a brief account of etiology and classification of types of cerebral palsy. It is not until the third chapter that the true worth of the book is discovered. This chapter is titled *Motor Reeducational Therapy*. It presents the general principles of motor reeducation which have been so noticeably absent from texts and practice manuals on speech therapy for the cerebral palsied. This material has been known to physical therapists and occupational therapists for some time, and they actively put into practice the basic information contained here.

The next two chapters are concerned with the 'extension of the theory of muscular reeducation to those muscles which serve the function of speech.' They are both well done.

Chapter Six presents material helpful to the teaching of individual sounds and comprises almost half the book.

Chapter Seven is titled *Educational Problems*, and in it Dr. Cass indicates that she is not the mechanist that certain critics will doubtless accuse her of being, for here she suggests (and cites examples to show) how a therapeutic program must fit into the total educational picture.

The Appendix consists of a rather comprehensive check list of muscles, with the suggestion that it may be used as a test 'to determine the main muscle groups for speech and what action the groups performed.' The intent is apparently that it be used in the same way that a physical therapist would go about her fundamental task of muscle checking prior to starting therapy.

This book impresses the reviewer more as a handbook for clinicians than as a text. It is as a text that it shows its weaknesses. Generally, the theoretical discussions are accurate but too brief to be of significant help to any but the most sophisticated of students, and then as a reminder. This is particularly true of the discussion on the neuroanatomic basis of cerebral palsy. The book is, however, long overdue. Through her pioneering, if not exhaustive, attempts to relate the best of motor reeducation in cerebral palsy to the retraining of the speech mechanism, the author has made a significant contribution to the potential efficiency of speech therapists everywhere. The end product is a book which belongs in the libraries of those who are particularly concerned with the speech reeducation of the cerebral palsied.

ROBERT HARRINGTON.
Orthopaedic Hospital
Los Angeles

STANLEY, DOUGLAS. *Your Voice: Applied Science of Vocal Art*. (Rev. ed.) New York: Pitman Publishing Co., 1950. Pp. 366. $6.00.

Stanley's 1950 revision is a definite improvement over his first book. It reveals a considerably increased knowledge of and reliance upon both anatomy and psychology as compared with his earlier writing, as well as presenting a better format and an improved treatment of details. To those in the field of speech who have worked strenuously to place their thinking, terminology, and teaching methods on a soundly factual basis, it is gratifying to read a book by a teacher of singing which is as far from the mystic-

Book Reviews is edited by Kenneth Scott Wood, University of Oregon.

ism of 'round tones,' 'blue tones,' and 'body resonance' as modern phonetics is from elocution. Such is an indication of progress.

Two reservations are perhaps in order. First, the author's psychology seems still nearer to behaviorism than to organismic or Gestalt concepts, which slants his methods consistently toward a mechanical approach to voice production rather than toward a 'whole method' or 'insight.' He consequently provides a mass of detail which may well lead to confusion rather than clarifying for others a method which is eminently successful in his own hands. Second, the very certainty with which he proclaims the superiority of his methods gives cause for reserve. His enthusiasm and conviction are to be commended; but it is doubtful that, even collectively, we know enough about the variables in voice production to be so certain of the 'correct' method.

The book is to be approved as an example of progress and, in the main, a sound and usable guide; but it should hardly be regarded as doctrine, to be followed without constant questioning in terms of one's own knowledge, experience, and pragmatic procedure.

Roy C. McCall.

University of Oregon
Department of Speech

Manser, Ruth B. *Speech Correction on the Contract Plan.* (3rd ed.) New York: Prentice-Hall, Inc., 1951. Pp. 408. $4.75.

This edition of Dr. Manser's manual for speech defectives differs but slightly from the two previous ones. Like them it is divided into four parts. Part I (9 pp.) briefly describes the phonatory mechanism and discusses various vocal qualities. Part II (49 pp.) includes chapters on the articulatory structures and phonetics, followed by sketchy explanations of functional, organic and emotional disorders. Part III (76 pp.) is made up of a series of exercises intended to develop relaxation ability, tongue agility, 'a smooth, free tone,' and various other abilities which the author feels are requisite to normal speech production. (For some reason not presented, breathing exercises are in Part I.) Part IV (224 pp.) contains 10 groups of 'contracts,' each group corresponding to a type of speech defect. Each of the contracts, of which there are from 10 to 15 per group, includes five divisions labeled *Objective, Procedure, Caution, Practice Material,* and *Test.* Lists of words difficult to pronounce, charts for phonetic analysis, etc., are found in an appendix.

This reviewer gathers from the somewhat sketchy explanation of 'the contract plan' which the author offers in the introduction, that the 'teacher' (words like 'correctionist' and 'therapist' are not used) listens to the speech of a defective speaker, determines which group of contracts is appropriate, and assigns *Contract One.* The 'student' practices uttering the provided syllables, words, etc., until he thinks that he has accomplished the stated objective. He then returns to the teacher to demonstrate his progress. If the teacher approves of the performance, the student is assigned *Contract Two* of the same group. Proper use of this Daltonian approach by a competent correctionist could undoubtedly contribute to the alleviation of many speech defects. It is hoped that its seeming simplicity will not tempt inadequately trained workers to use it in a manner which Dr. Manser did not intend. Obviously its use should be restricted to work with adolescents and adults.

Possibly the most valuable new material found in this edition lies in the single short paragraph which introduces the chapter called *Emotional Disorders.* Here the author points out that such disorders cannot be expected to be cured by speech exercises alone, a warning conspicuously omitted from previous editions. This point of view might have been emphasized to advantage by exclusion of the contracts for 'stammering' (the word 'stuttering' appears to have been avoided) which differ little from those for voice and articulation defects.

Charles Lightfoot.

Northwestern University

Robbins, Samuel D. *A Dictionary of Speech Pathology and Therapy.* Cambridge, Mass.: Sci-Art Publishers, 1951. Pp. 112. $1.65.

This dictionary is of particular interest to members of the American Speech and Hearing Association because it is the only work dealing primarily with terminology in the field of speech pathology.

It is only fair to the author and to the reader to state at the outset that the term *dictionary* is somewhat inaccurately applied to Robbins' work. The book is chiefly an elaboration, in alphabetized form, of the

'Revised Abridged Classification of Disorders of Speech and Language' with which it begins. There are, of course, definitions of many terms besides those in the proposed 'Revised Abridged Classification.' It is obvious, however, that Robbins has not attempted to list all the terms appearing in the literature, particularly those in the rapidly increasing current publications on audiology.

There are many classifications of speech and language disorders, and that of Robbins is one of the most detailed. The 12 major categories are set up chiefly on an etiological basis, and the subdivisions are based on symptomatology. This arrangement produces an eminently logical system. Many of the terms in his classification have not yet appeared in the literature, and only time will tell whether the system is practicable.

It is distressing to find in a dictionary of speech pathology and therapy that the pronunciation of the terms is not indicated by phonetic symbols. There may be some justification for ordinary dictionaries using diacritical marks instead of phonetic symbols, although this reviewer has never been impressed by the arguments used. In the case of this dictionary, however, it seems incredible that anything but phonetic symbols should ever have been considered; and the use of a non-standard method of respelling the terms to indicate their pronunciation is unfortunate.

SPENCER F. BROWN.
University of Minnesota

FROESCHELS, EMIL, ed. *Twentieth Century Speech and Voice Correction.* New York: Philosophical Library, 1948. Pp. 321. $6.00.

This is an interesting and thought-provoking book. In this reviewer's opinion it is a valuable contribution to the literature in the field. It is not, however, an easy book to review. A glance at the number of contributors and the variety and complexity of the subjects treated will indicate why. Its purpose is to offer persons interested in speech and voice correction the latest developments in the field. Each contributor has made an independent statement of his thinking and clinical experience with a specific type or types of disorder. The research, writings, and wide professional experience of the editor, however, appear to have a very considerable influence on the theories and practice of quite a few of the contributors.

Some of the points of view and therapies presented are unusual or radical departures from commonly accepted principles and practice (twentieth century concepts indeed) and will be questioned or received with some skepticism or reservations by experienced workers in the field of voice and speech and hearing disorders. These departures, however, should stimulate speech pathologists and mature clinicians to further experimentation and trial with the proposed principles and practices and may result in a healthy re-evaluation of conventional theories and techniques. Researchers, speech pathologists, experienced clinicians, and advanced students in the field of speech and hearing will find this book worthy of careful reading. The bibliographies at the end of each chapter are valuable in and by themselves.

LEON LASSERS.
San Francisco State Teachers College

LASSMAN, GRACE HARRIS. *Language for the Preschool Deaf Child.* New York: Grune and Stratton, 1950. Pp. 174. $5.50.

This book deals with the importance of embarking upon a program of language development for preschool deaf children. It emphasizes the necessity for teamwork among those concerned with the problems of the deaf child and cites the need for maintaining a balance between the needs of the child and the demands of his deafness. The author has attempted to combine the *what to do* and the *how to do* in meeting the problems of these children at the preschool level.

Lassman recognizes the potentialities for effective learning in the developing preschool deaf child; and she takes into consideration the relatively rapid physical, psychological, and social growth which takes place during this period.

In the introduction to the book an effort is made to present the problems created by deafness: problems for the child, the parents, and the community.

Part I, entitled *Fundamentals of the Training*, points up the idea that those who work with the preschool deaf child must relate methods and procedures to language if effective results are to be achieved; that is, speech, lipreading, auditory training, hearing aids, intelligence tests, play therapy, and all the other activities must be thought of in relationship to language.

Part II, headed *Activities for Language Development*, describes activities which may be employed by teachers and parents in guiding children at the preschool level; all activities suggested are based upon the idea of language development.

Part III is devoted to the subject, *The Nursery School for Deaf Children and Parent Education.* In this section the author presents an outline for a parent education program and a discussion of the nursery school for deaf children.

In summary, this book contains material which can be used to great advantage by parents and teachers of preschool deaf children, and it suggests activitieis that will directly assist in the guidance of these children. This reviewer believes that Lassman has made a constructive contribution to the program of early training for preschool deaf children.

JOHN E. TAYLOR.
Oregon State Department of Education

LERCHE, WILLIAM. *The Esophagus and Pharynx in Action: A Study of Structure in Relation to Function.* Springfield, Ill.: Charles C. Thomas, 1950. Pp. 222. $5.50.

The author presents the literature and the results of personal research on specimens relative to regurgitation and deglutition from the cardia of the alimentary canal through the pharynx.

There will be found in this book a detailed discussion of muscles, mucosa and segmental activity of the esophagus with a chapter devoted specifically to a discussion of the cricopharyngeus muscle.

Some of the techniques used in the investigation and the method of portraying the results graphically might be of interest to the experimental phonetician or the voice scientist. The chapter devoted to the cricopharyngeus muscle and its activity during deglutition and regurgitation contains interesting material for those studying muscle activity in relation to training for esophageal voice.

Though the book would probably not be acceptable as a text for a course in speech correction or voice science it is certainly to be recommended for supplementary reading for advanced students of organic involvements of the vocal mechanism.

J. L. BANGS.
University of Washington

HEFFNER, R-M. S. *General Phonetics.* Madison: University of Wisconsin Press, 1949. Pp. 253. $7.50.

The practical student of languages has lacked a good text on general phonetics ever since the current development of phonemic theory got under way. This book, with certain specific limitations, will be useful, especially to speech correctionists, audiologists, and general semanticists, whose theoretical understanding of linguistics is sometimes a bit less than systematic.

The first part, after a brief introduction devoted to definition of terms, contains 30 well-illustrated pages on the physiology and a dozen pages on the physics of speech sounds. Part II, three times as long, covers the individual phonemes and allophones. The extent of the analysis may be realized from the author's description of some two dozen stop consonants, in contrast to the six with which English gets along quite satisfactorily. Heffner's long experience as an instrumental phonetician insures detailed and accurate description of the physiological and acoustic data.

In non-instrumental matters, particularly in phonemic analysis and linguistic geography, the author is not always so reliable. Despite general agreement with most of the detailed statements, the present reviewer is compelled to tag some statements as dubious and some as downright errors. The equating (p. 70) of the initial sound of French *haricot* with the [h] of English *he* and German *Haus* is at least doubtful, despite the occurrence of [h] in some French dialects. The equating of English *ng* in *sing* with French *gn* in *montagne* is surely inaccurate on both phonetic and phonemic grounds, as is the equating of English *z* in *azure* with Italian *zz* in *organizzato* (p. 71). The reference to a raised and lengthened vowel in *bad* and *bath* 'in Pennsylvania and the Southeastern States' (p. 103) is misleading; the variation is by no means confined to such a limited area. References to the vowels used in the American pronunciation of such words as *hot, holiday, wall, water,* and *ought* (pp. 104-5) are badly confused. To attempt an explanation of the intrusive *y* sound in *column* in terms of palatization (p. 182) and to ignore the analogical formation from *volume* is dubious. The Canadian and Virginian diphthong in *house*, which the author derives by assimilation from the more usual American pronunciation (p. 196), is historically older than its purported ancestor. The whole section on assimilation is

so loosely defined that almost any phonetic change may be included under the rubric. On the other hand, sections on nasality (pp. 112-14) and voiced stops (pp. 121-24) are well analyzed, for the teacher of foreign students as well as for the theoretical linguist.

For the speech correctionist the most valuable aspect of the book is the outlining of the large variety of sounds from which the foreign or defective student may draw his idiosyncratic pronunciations. This material, together with the sections on physiology and physics, should make the book indispensable.

C. K. THOMAS.

Cornell University

JONES, DANIEL. *The Pronunciation of English.* (3rd ed.) London: Cambridge University Press, 1950. Pp. 206. $2.00.

The Pronunciation of English is a book of phonetic theory and discussion, without necessarily being a classroom textbook. It contains thousands of pertinent observations on the science of phonetics and on English pronunciation, representing the gleanings of a lifetime. No other British scholar in phonetics of the author's generation has observed so much and recorded so competently.

The book can, if desired, be adapted as a text; but since it lacks transcription lists, the teacher must supply these himself. The teacher must also contend with the fact that a beginner is in a sense expected to know all of the symbols before learning any of them. That is, from the very first he encounters transcriptions using symbols as yet undiscussed, except as they have appeared in the doubtful company of key-words. Furthermore, the user must 'translate' the author's highly personal 'broad transcription' into the more familiar IPA. But as a reference book, *The Pronunciation of English* has no equal in its field.

Despite the completeness of the renunciation in the preface, the author gives up with obvious reluctance the idea that educated Southern British is standard English. His reluctance shows in many unguarded phrases and in the somewhat apologetic retention of the term *received pronunciation* (RP), a designation for Southern British which has always aroused resentment as having a connotation of arrogance toward other island dialects of English, and toward the English of the commonwealth countries and of the United States. Needless to say, the author intends no arrogance, however unfortunate the term.

In dealing with such a vast amount of detail, it is to be expected that error or misapprehension may creep in, as when it is implied (p. 58) that Americans usually pronounce the last syllable of *crocodile* as [dɪl], or that (p. 44) a significant number of Americans use [ü] for [u], and 'distinguish *brood* and *brewed* as [brud] and [brüd].' Both words are customarily pronounced [brud] in America, or, as the author would write it, [bru:d]. But from the discussions of the several sounds of English in this book, it is possible to construct the major features of most of the important English dialectal sound systems. This highly accurate inclusiveness is a noteworthy achievement.

It would be a heavy sin of omission not to mention such notable virtues of this book as the following:

1. The treatment of that fountain-head of so many of the sound changes which characterize the evolution of language—assimilation.

2. The skillful separate treatment of the phenomena of syllable stress (force), intonation (pitch), and duration, and the combination of the three in emphasis (word stress, sense stress).

3. The extension of intonation (pitch variation, speech tune) to cover the melodic aspects of expressing varying meanings in different dialects.

4. The objective calm in which the whole excellent book is written. There is no violation of modesty in *The Pronunciation of English*, yet it is written with a sense of such completeness of scholarly thinking that the reader, even when he disagrees, has only the gravest respect for the opinions expressed.

C. M. WISE.

Louisiana State University

MEYER, MAX F. *How We Hear: How Tones Make Music.* Boston: Charles T. Branford Co., 1950. Pp. 117. $2.50.

Since his first explanation in 1898 of his ideas on cochlear function, Meyer has been known as the proponent of an hydraulic, non-resonance theory of cochlear mechanics. He is erudite and exacting as a student of physiologic acoustics; his work has been abstruse. *How We Hear* is presented as a summary of his work. Stripped for the most part of mathematical formulations and centered upon fairly simple hydraulic demon-

strations, it is without question the most readable of his works and gives readiest understanding of his theory.

The key to Meyer's theory is his consideration of cochlear function without recourse to resonance. Actually, his analysis is a specific refutation of cochlear resonance; as Meyer conceives the problem of cochlear analysis of sound, the basilar membrane in an hydraulic system like the cochlea could not possibly operate in resonance and does not need to.

Chapters I through XIII present a careful explanation of the operation of hydraulic pressures in a tubular structure like the cochlea under the impact of pressures from the outside. As the analogy is developed, various details which reflect the facts of cochlear anatomy as Meyer understands them are introduced, and the details whereby the cochlea works as an analyzer of sound are explained as a complex of pressure-patterns in the cochlear fluids. The basilar membrane is conceived as a semi-flaccid body suspended with relatively little lateral tension and almost completely damped; that is, it has no vibratory function of its own, but responds to the liquid pressures exerted upon it in terms of the frequency of the stimuli and the resulting velocities of the cochlear fluid. In this regard, his ideas on loudness, masking, and the phenomena of beats are particularly interesting.

After explaining his theory, Meyer devotes four short chapters to an analysis of the classical 'Tones of Tartini,' and pleads for more thorough psychologic experimentation and less Pythagorean mysticism in the study of these tones, presumably not analyzed but created by cochlear mechanics.

The last few chapters are concerned with remarks on musical notation and composition, based upon the cochlear theory. The argument is a strong plea for the development of a rational method of recording music that is consistent with the physiologic and psychologic aspects of acoustics. This part of the book is an extension of Meyer's *The Musician's Arithmetic*, and will be of special interest to musicologists.

There are several aspects of Meyer's cochlear theory which have long been incorporated in other theories of cochlear function. *How We Hear* is a reasonably clear explication in semi-popular style of his ideas on cochlear mechanics and deserves careful study by anyone interested in physiologic and psychologic acoustics.

WILLIAM G. HARDY.
The John Hopkins University

VON BONIN, GERHARDT. *Essay on the Cerebral Cortex*. Springfield, Ill.: Charles C. Thomas, 1950. Pp. 150. $3.75.

The *Essay on the Cerebral Cortex* is a fascinating combination of science and philosophy, with just a dash of religious fervor. Citations from Shelley, Alexander Smith, Plato, Coleridge, and the Chinese primer ornament the work. The book contains: (a) two introductions to the neurology of the cerebral cortex, one historical and one phylogenetic; (b) a solid and scholarly chapter on the morphology of the cortex; (c) three chapters on the physiology of the cortex, highlighting especially the functions of sensation, action, and prediction; and (d) a chapter on the part that the cortex plays in the emotional state. The book is framed between two sections called the prologue and the epilogue, in which much of the scientific writing of the text has been pointed up.

Von Bonin points out that scholarly anatomists of all ages have attempted to locate the seat of the 'soul.' Century after century, 'with the gradual sharpening of the concept of a natural law, the concept of the soul became vaguer and finally superfluous.' Von Bonin, however, finds the *soul* not in any one functioning organ, but in a patterning of relations between working parts. In discussing the various aspects of the soul, the author sharply emphasizes the faculty of symbolization, which makes this book of great use and interest to the student of speech. The freshest and most original contributions are contained in the chapter on 'prediction,' which may be called the neuro-cybernetics of the linguistic process. In this chapter, the author draws heavily upon the discussions of the famous sessions sponsored by the Josiah Macy, Jr. Foundation, where mathematicians, neurologists, psychologists, and sociologists meet to discuss questions of cortical organization.

If one is interested in these modern slants on how we think, feel, act, and speak, the book will be very rewarding.

ROBERT W. WEST.
Brooklyn College

Abstracts

NATHANS, Z. Use of toys in the treatment of cerebral palsied children. *Crippled Child*, 29(1), 1951, 4-6, 28-29.

This is a report of the findings in a study on the use of toys with cerebral palsied children conducted at the Lenox Hill Cerebral Palsy Clinic, it being one of three centers thus participating. A list of 24 toys is given which were found to be most consistently useful in training and developing the cerebral palsied child together with the purposes which the toys may serve. The trade name of each toy and its manufacturer is included. (*J.V.F.*)

WESTLAKE, H. A system for developing speech with cerebral palsied children. *Crippled Child*, 29 (1), 1951, 10-11

In this, the first of a series of articles, the author proposes a three-phase system for speech training consisting of: (1) psychological and social readiness for speech, (2) physiological readiness for speech, and (3) direct training of speech. While stressing the need for such a system, the point is made that every child need not be handled in the same way nor can any one phase ever be considered to be permanently or finally established.

Under the first phase, which 'includes an awareness of speech, an interest in speech, and a need for some speech,' a number of practical suggestions are offered for attaining these goals. Parents must be responsive to their child's every attempt at social interaction and, at the same time, foster a spirit of independence and a feeling of choice and direction in all matters. Without the highest possible level of social interaction and independence, success in speaking is very unlikely. (*J.V.F.*)

WESTLAKE, H. A system for developing speech with cerebral palsied children: Part II. *Crippled Child*, 29(2), 1951, 9-11, 28-29.

Under the physiological maturity or physical readiness for speech, the author takes up the evaluation of 'a cerebral palsied child's motor deficits for speech and the development of essential motor skills that may be lacking or inadequate. . . .' The three activities of breathing, phonation, and opening and closing the mouth, described as basic in speech, provide the framework for this article; two other such basic activities, elevating the tip of the tongue and peristaltic movement, will be treated in the next article.

'Rather than considering "breathing for speech" as something separate it might be better considered as a part of the dynamics of motor maturation.' A number of training techniques are given for the more skillful initiation and prolongation of phonation. Finally, the teaching of efficient eating movements is emphasized since 'in learning to speak we take over and adapt movements developed in connection with chewing, sucking, and swallowing.' Several exercises are given for opening and closing the mouth. A device for stabilizing the mandible is both illustrated and discussed. (*J.V.F.*)

GAUGER, A. B. Electrodiagnosis in cerebral palsy. *Amer. J. ment. Def.*, 56, 1951, 145-151.

E. E. G. and electromyogram data were secured for 88 female subjects who were cerebral palsied and mentally retarded. These data were compared with neurological findings. The author reports no success in the location or the determination of the extent of brain lesions. The electromyogram

Abstracts is edited by Eugene T. McDonald, Pennsylvania State College, assisted by the following committee: Jack L. Bangs, University of Washington; Asa J. Berlin, Pennsylvania State College; Leo G. Doerfler, University of Pittsburgh; Charles R. Elliott, Northwestern University; James V. Frick, Western Michigan College of Education; Lester L. Hale, University of Florida; Jeanette A. Hoffman, Rockford, Ill.; Jack Matthews, University of Pittsburgh; Sylvia J. Onesti, Children's Medical Center, Boston, Mass.; D. C. Spriestersbach, State University of Iowa; Jesse J. Villareal, University of Texas; Charlotte G. Wells, University of Missouri. The committee systematically reviews 203 journals for articles of interest to members of ASHA. Students and other members are encouraged to submit abstracts. Directions for preparing abstracts may be obtained from the abstracts editor.

appeared to be of value in differentiating between cases of atonic cerebral palsy and spastic forms where the clinical pictures were similar. (*J.J.V.*)

DOLL, E. AND WALKER, M. Handedness in cerebral palsied children. *J. consult. Psychol.*, 15, 1951, 9-17.

A 30-item activity handedness scale was administered to 34 subjects aged 4.0 to 19.5 years. Results showed the majority of the subjects to have 'disestablished' in their handedness. Implications for theory and educational planning are presented. (*C.R.E.*)

FRANK, L. Social and emotional development in the adolescent crippled. *Crippled Child*, 29(2), 1951, 4-5, 28.

'Much of the bitterness and life-long resentful hostility that handicapped adults often show could be avoided by more concern for the social, emotional and sexual development of children especially in the teen ages when insight and understanding and careful planning by adults can help them to meet life more adequately and courageously as personalities.'

The author describes four 'life tasks' every adolescent must face which are difficult enough to accomplish for the normal child and, for the handicapped adolescent, are particularly difficult. Taking up each one, he discusses ways in which the adults concerned (especially the parents) can best aid the child in moving toward these goals. (*J.V.F.*)

FIELDING, B. A 'story completion' for use with the physically handicapped. *J. proj. Techniques*, 15, 1951, 299-306.

A 'story completion' projective technique is described and its use with a population of 40 female subjects aged 18 to 30, visual handicapped, is reported. This technique seems to elicit attitudes towards the disability itself and therefore is helpful in therapy. (*C.R.E.*)

SPERLING, M. The neurotic child and his mother: a psychoanalytic study. *Amer. J. Orthopsychiat.*, 21, 1951, 351-364.

Discussion of three cases taken from 20 pairs of neurotic children and their mothers who had been analyzed either simultaneously or consecutively by the author. Neuroses of the children tend to complement the corresponding pathological needs of their mothers. M. S. Mahler discusses the paper. (*C.R.E.*)

Child Study, 28 (Spring, 1951).

Issue devoted to 'Children Who Are Different.' Articles in the issue include the following: Alice V. Keliher, 'The Freedom to be Different'; David Riesman, 'How Different May One Be?'; Kenneth B. Clark, 'How to Protect Children against Prejudices;' and Betsy Barton, 'Is Your Child Handicapped?' (*J.J.V.*)

ANONYMOUS. When a child is different. *Parents Mag.*, 50, 1951, 122-126.

Written by the mother of a mentally retarded child, a number of helpful, practical suggestions are made for those parents who suspect that one of their children may be 'different.' The author traces the course of her feelings from the first moment of suspicion to the decision to commit the child to a state training school. (*J.V.F.*)

REIDER, N. The concept of normality. *Psychoanal. Rev.*, 19, 1950, 43-51.

The author's thesis is that 'while the alleviation of anxiety by psychiatric education often leads to individual and social benefits, there are numerous instances of individuals who are worse for their knowledge.' Clinical observations of the author reveal that, to a certain segment of the population, the term 'normality' has meaning as an extension and a derivative of 'good.' 'Psychiatric education which results in increased information and sensitivity to the concept of normality in behavior may be anxiety-provoking in that many attitudes are now recognized as symptoms and many symptoms acquire distressing consequences.' (*D.C.S.*)

GENS, G. The speech pathologist looks at the mentally-deficient child. *Train. Sch. Bull.*, 48, 1951, 19-27.

There is a threefold role that the speech pathologist can play in the field of mental deficiency: 1. Speech therapy and speech development for the child who can most profit from it; 66 per cent of the mentally defective who had speech, had speech defects. 2. Proper differential diagnosis to separate problems of intelligence, aphasia, deafness, etc., and to determine if the speech problem is primary. 3. Research on the speech of the mentally-deficient. (*A.J.B.*)

A.P.A. Committee on Ethical Standards for Psychology. Ethical standards in clin-

ical and consulting relationships. Section 3, Parts II-V; Ethical standards for psychology. Section 2—Ethical standards in professional relationships. Section 4—Ethical standards in research. Section 5—Ethical standards in writing and publishing. *Amer. Psychologist*, 6, 1951, 145-166, 427-452.

Further reports by the A.P.A. Committee on Ethical Standards for Psychology, listing general discussion, problems, and incidents in the various specific areas of practice for the guidance of the professional person. (*C.R.E.*)

SCHOFIELD, W. Research in clinical psychology: 1950. *J. clin. Psychol.*, 7, 1951, 215-221.

Report of 148 research studies in six selected journals during 1950. This summary is primarily descriptive rather than critical or theoretical. (*C.R.E.*)

WEIDER, A., NOLLER, P. AND SCHRAMM, T. The Wechsler intelligence scale for children and the revised Stanford-Binet. *J. consult. Psychol.*, 15, 1951, 330-333.

Comparison of scores on the two intelligence scales for 106 white children, aged 5.0 to 11.11 is given. The Binet I.Q.'s tend to be higher and a provisional table of 'equivalent scores' for conversion of scores is presented. (*C.R.E.*)

KITZINGER, H. AND BLUMBERG, E. Supplementary guide for administering and scoring the Wechsler-Bellevue intelligence scale (form 1). *Psychol. Monogr.*, 65 (2), 1951, 1-20.

Suggestions for administering and scoring parts of the Wechsler-Bellevue. Includes handy list of abbreviations for making notes during testing. Intended only as a supplement to the standard manual. (*C.R.E.*)

SLOAN, W. Motor proficiency and intelligence. *Amer. J. ment. Def.*, 55, 1951, 394-406.

To study the relationship between intelligence and motor proficiency, 20 mentally retarded children were matched with 20 normal children for chronological age and sex. As measured by the 1937 Revision of the Stanford-Binet test, I. Q.'s for the mentally retarded group fell in the 45-70 range; for the normal group, in the 90-110 range. The measure of motor proficiency used was the Lincoln Adaptation of the Oseretsky Test of Motor Proficiency. All subjects were also given the Vineland Social Maturity Test. Of the mentally retarded group, half the males and half the females were classified as 'familial'; the remaining half were classified as 'undifferentiated.'

Results of the study indicate a relationship between intelligence and motor proficiency, with mentally retarded children significantly inferior to children of average intelligence in motor proficiency. No sex differences were found, and there was no statistical significance in differences of scores by 'familial' and 'undifferentiated' mental defectives. The normal children were significantly superior to the feeble-minded on the Vineland Social Maturity Scale. It is suggested that an adequate evaluation of adaptive capacity should include not only estimates of intelligence but of motor proficiency and social maturity as well. (*J.J.V.*)

ELVIN, M. AND OLDFIELD, R. Disabilities and progress in a dysphasic university student. *J. Neurol. Psychiat.*, 14, 1951, 118-128.

Case report and analysis of pre- and post-injury essays written by a student who resumed a history scholarship and won honors despite having dysphasia following a penetrating head wound. Results are discussed in the light of theory about dysphasia. (*C.R.E.*)

WISHIK. S. To restore the child with cleft palate. *Child*, 15(8), 1951, 141-143, 151.

The author points out the 'many ways in which the public through Federal, State, and local agencies, is called upon to meet the rehabilitation needs of children born with cleft palate.' He stresses the responsibility of the local health department for 'coordinating community efforts to obtain for children with cleft palate complete rehabilitation and continued care according to a rather well established timetable.' (*J.V.F.*)

CRUICKSHANK, W. Growth in the quality of local services for exceptional children. *J. except. Child.*, 17, 1951, 233-236.

Two major factors in improving the quality of services to exceptional children have been the unification of the program within the local school administration and the higher level of training of the personnel who participate as teachers and administrators. The over-all development since 1900 has been spurred by the giving way of social

ostracization to social acceptance, the great strides made by medicine and psychology, the staggering number of draft rejections in World Wars I and II, and the wide enactment of state legislation regarding special education. However, 'the problem of the exceptional child in the rural areas has been, and largely remains, unsolved in 1951.' (*J.V.F.*)

MILLER, J. Hearing and speech program at the University of Kansas Medical Center. *Amer. Ann. Deaf*, 96, 1951, 353-362.

The Department of Speech and Hearing of the University of Kansas Medical Center works in conjunction with the Department of Education and the Graduate School of the University of Kansas and the Kansas School for the Deaf. It operates for the following purposes: (1) presentation of problems of hearing and non-medical rehabilitation to medical students, nurses, occupational therapists, and physio-therapists; (2) training program for teachers of the deaf; (3) parent education for preschool deaf; (4) preschool for the deaf; (5) facilities for diagnostic testing and hearing aid selection; (6) clinical rehabilitation facilities; (7) consultive services; (8) research. (*A.J.B.*)

AMIDON, H. Speech services in the Hartford schools. *J. except. Child.*, 17, 1951, 178-181.

The program of the speech and hearing department of the Hartford schools is so divided as to permit daily work in three major areas, namely, speech and hearing therapy, speech improvement, and parental conferences. The development of this program since its inception in 1937 is traced briefly as a possible aid to other correctionists. (*J.V.F.*)

BRYNGELSON, B. The classroom teacher testing for speech defects. *Sth. Speech J.*, 16, 1951, 214-218.

When classroom teachers were checked on their ability to test for speech defects, they were found to be unusually reliable. The aid of teachers was obtained in finding those children with deviant speech. The teachers were given suggestions for observing the speech of the pupils in their classrooms and their speech test findings were used to supplement results of other tests in making a more complete record for each child. The participation of the classroom teachers in the speech testing program helped to bring about better relationships between the teachers and the speech therapists. (*C.G.W.*)

BISHOP, K. Integrating speech with the elementary program. *West. Speech*, 15, 1951, 35-38.

The writer describes a program in which the speech correctionist meets with the parents yearly, points out the need for good speech for a child entering school, and interviews all children whose parents seek help for them. A speech survey is administered at the beginning of school. Therapy is on an individual and a group basis, with classroom clinics providing in-service training for the teachers. (*C.G.W.*)

WELLS, C. Speech in the full school program. *Elem. Engl.*, 28, 1951, 201-204.

The classroom teacher should not assume that the child's speech is at its maximum, but should emphasize the need for good speech in all class and school situations. Every class can be a speech class and every teacher a speech teacher, by example at least. (*C.G.W.*)

MILNER, E. A study of the relationship between reading readiness in grade one school children and patterns of parent-child interaction. *Child Develpm.*, 22, 1951, 95-112.

One hundred eight Grade One children were given the Haggerty Reading Examination and the 'language factors' subtests of the California Test of Mental Maturity. The 21 children obtaining the highest language factor scores were then compared with the 21 children obtaining the lowest language factor scores. Each of the 42 children were interviewed privately, data were obtained from their parents in a home interview, and each family was given a social-class typing.

A high relationship was found to exist between low scoring and lower-class status and high scoring and middle-class status. 'The lower-class child of this study seems to lack chiefly two things upon entering school as compared with the middle-class child of this study: (1) a warm positive family atmosphere or adult-relationship. . . . and (2) an extensive opportunity to interact verbally with adults of high personal value to the child and who possess adequate speech patterns.' Significant differences were found between the two groups with respect to amount of verbal stimulation and the oppor-

tunities for conversation with adults in the home. A detailed description of procedure and a breakdown of the findings are included. (*J.V.F.*)

SEILS, L. G. The relationship between measures of physical growth and gross motor performance of primary-grade school children. *Res. Quart.*, 22, 1951, 244-260.

This study investigated the relationships which exist between measures of physical growth and maturity of primary school children and their proficiency in performing gross motor activities. Height and weight measures and X-rays of the carpal bones of the wrist were used as indicators of physical growth and maturity. A series of seven motor tests of the 'big muscle' type were used to measure levels of motor proficiency. Five hundred ten primary grade children were studied.

The mean performance of the children on the motor tests considered in this study was greater at each age level. There was no relationship between gross motor skills performance and age, height, or weight.

'Correlations between a measure of maturity and certain gross motor skill performance indicated some relationships. Upon considering the many factors which may influence motor performance, the relationships between skeletal maturity and motor performances, although they are not great, may be lent more significance.' (*D.C.S.*)

BRILL, R. G. The training of academic teachers of the deaf. *Amer. Ann. Deaf*, 96, 1951, 282-287.

This is the report of a study exploring (1) the specialized training of academic teachers of the deaf in the United States since 1817, (2) certification requirements for teachers of the deaf, (3) specialized training of the 'best' and 'poorest' teachers, (4) the thoughts of leaders and teachers about important factors in training teachers of the deaf, and (5) any differences in preparation between day and residential teachers.

The basic principles for the selection and training of teachers are presented, including a specified curriculum. Nine recommendations for improving present training and certification requirements are made. (*A.J.B.*)

O'CONNOR, C., NUMBERS, M. AND STRENG, A. Preparation for teachers of the deaf. *Volta Rev.*, 53, 1951, 302, 322-324.

These are the minimum requirements for a teacher training program as adopted by the Volta Speech Association for the Deaf. The program presupposes work in education, preferably elementary education, and includes the following courses: (1) the teaching of speech to the deaf; (2) the teaching of language to the deaf; (3) methods of teaching elementary school subjects to the deaf; (4) problems in the education and guidance of the deaf; (5) auditory and speech mechanisms; (6) audiometry, hearing aids and auditory training; (7) methods of teaching speechreading to the deaf and hard of hearing; (8) observation and student teaching; (9) psychology of exceptional children. (*A.J.B.*)

SCHUNHOFF, H. AND MACPHERSON, J. What about the deaf or hard of hearing mentally deficient? *Train. Sch. Bull.*, 48, 1951, 71-75.

This is an initial report of a questionnaire survey in which institutions for the mentally deficient were asked to report their deaf or hard of hearing population. Sixty institutions reported a total of 1,593 patients with these handicaps. The authors suggest a plan for the education of these children, starting with the establishment of special classes in institutions for the mentally deficient, since the hearing handicap is secondary. They suggest that deaf teachers might be excellent instructors for this group. (*A.J.B.*)

MCCONNELL, F. The child with high frequency loss. *Volta Rev.*, 53, 1951, 295-297, 328.

The child with normal hearing for low frequencies and a high frequency loss will have many problems in speech, learning, or behavior. The cause of his difficulty may be undetected because he apparently hears sound normally yet does not respond properly to speech. Examples are given and reasons for educating the classroom teacher to look for this kind of problem. (*A.J.B.*)

BLEGVAD, N. R. Psychogenic deafness (emotional deafness). *J. Laryng.*, 65, 1951, 166-182.

Deafness, both organic and psychogenic, resulting from sudden strong sound is considered, and the pertinent American and European literature is briefly described. It may be that the hearing loss is part organic (4000 cycle dip) and part psychogenic (500-2000 cycle range). Most authorities are at variance as to the frequency of occurrence and nature of the deafness resulting from

blast. Diagnosis of psychogenic deafness depends on the results of special tests and the evaluation of symptoms, and the therapy is necessarily psychic. The economic aspects, especially pensions, disability payments, etc., complicate recovery. In Denmark the injured worker is paid a lump sum in compensation, and recovery is apparently more frequent, once the claim has been settled. (*L.G.D.*)

HARBERT, F., AND SATALOFF, J. Functional deafness. *Arch. Otolaryng., Chicago*, 54, 1951, 38-42.

Functional deafness, considered as synonymous with psychogenic deafness, is considered under three headings: (1) psychological; (2) malingering, either transient or personality disorder; and (3) psychoneurotic, either anxiety neurosis, conversion hysteria or hypochondria. The otologist can handle psychological defects and malingering, employing aural rehabilitation or 'Dutch Uncle' talk. With the psychoneurotic the efforts of the otologist, psychiatrist and audiologist are needed. Seven findings indicative of psychogenic hearing loss are listed briefly. (*L.G.D.*)

McKIBBEN, B. G. Exostosis of the external auditory canal. *Arch. Otolaryng., Chicago*, 53, 1951, 668-669.

A case report is given of a pedunculate tumor completely occluding the external auditory canal. Audiograms taken before and after surgical removal indicate improvement of from 10 db in the lower frequencies up to 50 db at 2048 and 4096 cycles. The preoperative air conduction audiogram was suggestive of a predominantly nerve involvement. (*L.G.D.*)

WEVER, E. G. AND LAWRENCE, M. The functions of the round window. *Ann. Otol., etc.*, 57, 1948, 579-589.

Wever and Lawrence report that they studied the round window by immobilizing it in various ways while recording the electric potentials of the cochlea. All forms of blocking used caused only minor alterations of sensitivity. These alterations were usually at one end or the other of the frequency scale and were usually of 5-10 db. They conclude that the introduction of grafts into the round window cannot benefit hearing. (*J.A.H.*)

BEKESY, G.v. The coarse pattern of the electrical resistance in the cochlea of the guinea pig. *J. acoust. Soc. Amer.*, 23, 1951, 18-28.

A detailed description is given of a technique of measurement of the electrical resistance of the guinea pig cochlea. Also considered are the maximum tolerable current for cochlear tissue, the input impedance of the cochlea near the round window, voltage attenuation along the cochlear partition and the electrical impedance of the cochlear tube. It is hoped that these and other studies of cochlear electrical geometry will lead to the development of the electroanatomy of the cochlea and complement present knowledge of the mechanical properties of the cochlea. (*L.G.D.*)

HEISE, G. AND MILLER, G. An experimental study of auditory patterns. *Amer. J. Pyschol.*, 64, 1951, 68-77.

Three subjects adjusted a single variable tone until it was isolated from the remaining fixed tones of a simple auditory pattern. Settings were adjusted to six different frequency ratios in four patterns of sequence. Results agreed generally with visual perceptual factors. Thresholds for inclusion were determined by the nature of the pattern and the magnitude of successive frequency ratios in the pattern. (*C.R.E.*)

LUSCHER, E. AND ZWISLOCKI, J. Comparison of the various methods employed in the determination of the recruitment phenomenon. *J. Laryng.*, 65, 1951, 187-195.

The advantages and disadvantages of some seven different methods of measuring the recruitment phenomenon are discussed. Among these are loudness balance (monaural and binaural), the masking test, short-duration fatigue, adaptation, and several approaches to measuring the intensity difference limen. The techniques of Bekesy, Denes and Naunton, and the authors are taken up in detail, and it is concluded that the measurement of the intensity difference limen employing amplitude modulation of a tone offers the greatest advantage. Only one measurement for each tone is required, and this may be done at any sensation level desired. (*L.G.D.*)

BEKESY, G.v. Microphonics produced by touching the cochlear partition with a vibrating electrode. *J. acoust. Soc. Amer.*, 23, 1951, 29-35.

The touching of a single point on the cochlear partition offers advantages in the study of the cochlear microphonic. Detailed

figures and photographs are given of the apparatus employed. The many artifacts which are possible are discussed and methods of overcoming them described. 'The basilar membrane is more sensitive to displacement in the radial direction than in the direction perpendicular to its plane.' Apparently only 'constant stationary displacement' of the cochlear partition produces the microphonic voltage. (*L.G.D.*)

BLACK, J. W. The effect of noise-induced temporary deafness upon vocal intensity. *Speech Monogr.*, 18, 1951, 74-77.

An earlier study by the author showed that readers use greater vocal intensity in sound-treated rooms than in live rooms. The present study was designed to explore further the possibility that the readers may be attempting to maintain a normal level of side-tone.

'One hundred forty-four male college students (NROTC) in turn: (a) read 12 five-syllable phrases, (b) sat in high level noise for two hours, and (c) read a second series of 12 five-syllable phrases. Approximations of the subjects' hearing acuity were obtained with each of the periods of reading.' The subjects were divided into six groups of 24 each with respect to the time interval between exposure to the noise and the post-noise testing; the time intervals were 0, 3, 6, 9, 12, and 15 minutes. Thus, one group was tested immediately after exposure to noise, one group was tested after a three-minute delay following exposure to noise, etc.

The six populations were not significantly different in pre-noise measurements of either hearing or vocal intensity. Exposure to noise affected both hearing and vocal intensity. As the time interval between the noise and the second test became longer both hearing and the level of vocal intensity approached the pre-test levels. The effect upon hearing, however, was greater than the compensating effect upon speaking. The author concludes that 'the possibility remains that with normal-hearing people the airborne component of side-tone is important, although not the sole factor, in the feedback systems that contribute to setting the level of voice.' (*D.C.S.*)

ANDERSON, T. AND BLACK, J. An experimental study of the evaluation of hearing aids. *Sth. Speech J.*, 16, 1951, 278-280.

The writers made a study to ascertain whether aids fitted in an evaluation center yielded advantages over aids obtained by chance. The results supported the practice of fitting aids individually. (*C.G.W.*)

Quick facts on magnetic tape recorders. *Audio Rec.*, 6(7), 1950, 3-8.

This is a catalogue of the tape recorders produced by 25 manufacturers with illustrations and manufacturer's data of price, frequency response, speeds, type of tape, single or double track, signal-to-noise ratios, weight, etc. (*A.J.B.*)

HANLEY, T. D. An analysis of vocal intensity and duration characteristics of selected samples of speech from three American dialect regions. *Speech Monogr.*, 18, 1951, 78-93.

This study investigated the vocal frequency and duration characteristics of speech in the General American, Southern American and Eastern American dialect regions. Speech samples from a read passage and an impromptu speech for each subject were recorded and converted to spectograms for duration analysis and phonellograms for frequency analysis.

Comparison of the duration measurements made on 49 sounds indicated that statistically significant between-group differences existed for 13 of the sounds. These data 'suggest that sounds which are stressed tend to be relatively greater in duration for the Southern American group, while unstressed sounds . . . tend to be relatively greater in duration' for the Eastern American group. Frequency levels were statistically significantly highest for the Southern American group in the impromptu speech sample; a difference in the same direction, though not statistically significant, was found for the reading passage. The ratio of the number of downward inflections to the total number of inflections used in the reading passage was statistically significantly greatest for the Eastern American group. The author feels that other observed trends need to be investigated by further large-sample research. (*D.C.S.*)

News And Announcements

The Third Annual Convention of Sigma Alpha Eta, national speech and hearing society for students, will be held in the Stevens Hotel, Chicago, the day prior to the American Speech and Hearing Association Conference. The National Executive Council will convene at eight o'clock on the evening of December 27, 1951. The General Assembly will be held December 28, 1951 at eight p.m. Representatives of all chapters and prospective chapters are invited to attend the Assembly. Dr. Mack Steer, this year's ASHA president, will be the speaker.

The Executive Council held an all-day meeting in Pittsburgh on April 21 at which time plans were made for the December Convention, and four new chapters were approved. To date there are 22 established chapters in 13 states.

Council members will be available during the ASHA Convention period to meet with persons or groups interested in the organization. Information will be sent out upon request by the National Executive Secretary, Dr. C. Cordelia Brong, Speech and Hearing Clinic, The Pennsylvania State College, State College, Pa.

The spring meeting of the Acoustical Society of America will be held in New York, May 8-10, 1952.

The Central States Speech Association will meet at the Hotel Mayo, Tulsa, Oklahoma, April 18-19, 1952. Professor John Keltner, University of Oklahoma, is in charge of the convention plans.

The Royal York Hotel, Toronto, Canada, will be the meeting-place next May for three closely associated groups: The American Otological Society, May 18-19, 1952; The American Laryngological Association, May 20-21; and The American Laryngological, Rhinological and Otological Society, May 22-24.

The 20th anniversary of the American Institute of Physics was held October 23-27, at the Hotel Sherman, Chicago, Illinois. The highlight of the session was an all-day symposium organized upon the theme, 'Physics today,' which constituted a survey of current knowledge in the various branches of the field. The symposium featured invited papers by: Enrico Fermi, *The Nucleus;* E. U. Condon, *The Atom;* J. C. Slater, *The Solid State;* Harvey Fletcher, *Acoustics;* Edwin H. Land, *Optics;* K. K. Darrow, *Physics as Science and as Art.*

Ninety classroom teachers, principals, remedial reading consultants, and speech therapists attended an Institute on Remedial Speech at the Boston University School of Education from June 25 to 30. The Institute included lectures, discussion groups, and demonstrations of group therapy in voice and articulation. The staff of the Institute included Dr. Wilbert Pronovost and Dr. Donald Wilson, Boston University, Dr. Sylvia Onesti, Children's Medical Center, Miss Geraldine

News And Announcements is edited by Miriam D. Pauls, Johns Hopkins University.

Garrison, Connecticut State Department of Education, Dr. Lois Rossignol Mayper, Brandeis University, and Public School Speech Therapists Honora Foster, Waltham, Mass., Eleanor Mc Breen, Watertown, Mass., Barbara M. Smith, Nashua, N. H., and Wesley Wallenius, Brookline, Mass.

For the third consecutive year, a summer workshop in speech correction was held at the Noyes School in Evanston, Illinois, through the cooperation of the School of Speech, Northwestern University, and the Evanston Public Elementary Schools.

The administrative personnel consisted of Dr. Isaac P. Brackett, Director of Student Teachers, Northwestern University, who was in charge of student teachers and assisted in organizing the workshop; Miss Hester Burbridge, Director of Special Services, Evanston Public Schools, who served as administrative coordinator; Miss Gloria Gross, speech correctionist in the Evanston Public Schools, who was director of the workshop and coordinated workshop activities; and Mrs. Irma Kratovil, speech consultant for the Chicago Public Schools, the critic teacher who worked directly with the student teachers.

The workshop had two purposes: to provide the opportunity for speech handicapped children to receive therapy during the summer, and to enable students majoring in speech correction at Northwestern University to acquire supervised teaching experience. A total of 36 children were enrolled, 32 of whom came in for daily therapy.

The Coordinating Council for Cerebral Palsy in New York City, Inc. will again sponsor a two-week Cerebral Palsy Institute, to be given from January 21 through February 1, 1952. Qualified physicians, physical, occupational, and speech therapists, nurses, social service, rehabilitation and guidance workers, teachers, and psychologists are eligible. The Institute will include seminars, field trips, clinical demonstrations, and lectures. Emphasis will be placed on the medical, sociopsychological aspects of mental subnormalities of the cerebral palsied and on recent contributions of psychometrics to this field.

A three-month post-graduate cerebral palsy course, designed for physicians, occupational and physical therapists, is offered through cooperation of the Coordinating Council for Cerebral Palsy in New York City, Inc., and the College of Physicians and Surgeons, Columbia University. A limited number of scholarships are available. Full information and application blanks can be obtained from Miss Marguerite Abbott, Executive Director, The Coordinating Council for Cerebral Palsy in New York City, Inc., 270 Park Avenue, New York 17, N. Y.

A new lending library of books to help parents and teachers of children with hearing impairments has been established by the Volta Bureau. It has been made possible by a special fund set up by Arthur B. Simon as a memorial to his grandmother, Mrs. Clara Block. It is called the *Parents Library* and is different from the regular Volta Bureau library, which is a reference library only.

For details write: Volta Bureau, 1537 35th Street, N. W., Washington 7, D. C.

The Physics Department of Smith College has collected for reference a large number of reprints on the subject of sound from the files of the

late Professor Arthur T. Jones. These date from about 1900 to 1950, and include many items from obscure journals of other countries. Subjects covered concern primarily problems related to bells, pipes, hearing, etc. There is also a collection of miscellaneous material about the chimes and carillons of many lands. A considerable mass of further information is included in his correspondence with scientific colleagues. This material, which consists of many small items, is to be kept intact as the Arthur Taber Jones Collection in the Lilly Hall Library of Smith College. Anyone interested is invited to use it as a reference reading room.

The Mercury Record Corporation has started an educational service for teachers and librarians who are interested in recordings for audio-visual education. A functional catalog has been prepared to facilitate the selection of appropriate records for specific age and interest groups. For information write Mr. Ben Deutschman, Mercury Record Corporation Educational Service, Room 1500, 1475 Broadway, New York 18, N. Y.

That the Deaf May Speak is a 20-page picture story of the work done at the Lexington Avenue School for the Deaf. It is a graphic representation of the education of a deaf child and should be useful instructional material.

Medals were awarded to Barry G. Anson, Ph.D., Professor of Anatomy, Northwestern University School of Medicine, and Theodore Bast, Ph.D., Professor of Anatomy, University of Wisconsin School of Medicine, for their joint research contributing to the knowledge of 'The Embryology in Anatomy of the Temporal Bone and the Ear.'

The Award of Merit medal is accompanied by an honorarium and is granted by the American Otological Society, Inc., for the purpose of recognizing outstanding service in research in otology and in the interest of encouraging research in the problems of impaired hearing.

The National Society for Crippled Children and Adults has announced two new professional staff appointments:

Dr. Phyllis F. Bartelme, a former research consultant in psychology, will be stationed in the New York offices of the Society. She will interpret specific needs of crippled children and adults to other national organizations in the health and welfare fields.

Mrs. Louise Baker is the new director of public relations for the Society. She was formerly at the Fels Research Institute, Antioch College, Yellow Springs, Ohio. Mrs. Baker, who is herself an amputee, is the author of several books concerned with the problems of crippled children. In her new position, she will direct the over-all publicity for the National Society.

Martha M. Eliot, M.D., has been appointed the new Chief of the Children's Bureau. Dr. Eliot had been with the Bureau for 25 years, prior to a two-year absence in Geneva, Switzerland, as an Assistant Director General of the World Health Organization. She succeeds Katherine F. Lenroot, who retired on August 31, 1951 after 37 years of service with the Bureau, the last 17 of which she was Chief.

The American Hearing Society has appointed W. Earl Prosser as Executive Vice-President to succeed the late Harry P. Wareham. Mr. Prosser has had varied experience in commu-

nity chests and social work agencies in Connecticut, Colorado, Rhode Island, and Ohio. He comes to Washington from Columbus, Ohio, where he was executive director of the Ohio Citizen's Council for Health and Welfare.

Graduate Assistantships, Fellowships, and Scholarships

This section lists part-time graduate appointments, fellowships, and scholarships specifically designated for graduate work in speech and hearing. General university fellowships and scholarships, unspecified as to area of concentration, and full-time graduate positions will not be included.

Copy should be submitted to the Editor, and should include formal title of appointment, institution, and unit; dates, general duties, and remuneration; name and address of persons receiving applications. Deadline for receiving copy is two months prior to the publication date.

Clinical Assistantships. Purdue University. Speech and Hearing Clinic. Starting February or September. Half-time; 20 hours per week of clinical assistance. $1200 for regular school year; waiver of tuition fees. Student may enroll for 10 semester hours of graduate courses. Address M. D. Steer, Speech and Hearing Clinic, Purdue University, West Lafayette, Indiana.

Clinical Assistantships. University of Illinois. The Speech Clinic, Department of Speech. Starting February or September. Half-time; 20 hours per week of clinical assistance. $1200 for nine months; remission of tuition. Student expected to enroll for three-fourths of normal graduate course load. Address Karl R. Wallace, 138 Lincoln Hall, University of Illinois, Urbana, Illinois.

Clinical Assistantships. University of Southern California. Speech Department. Diagnosis and supervision of cases in the Speech and Hearing Clinic equivalent to 6 or 8 units of work per semester. $80.00 per semester unit of work; free tuition not included. Assistants normally carry 8 to 12 units of study per semester. Address Milton Dickens, Department of Speech, University of Southern California, Los Angeles 7, California.

Clinical and Research Assistantships. Ohio State University. Department of Speech. Starting January, March, June, or September. 15 to 25 hours per week of clinical or research assistance. Two-thirds to three-fourths graduate load. Address W. Hayes Yeager, Chairman, Department of Speech, The Ohio State University, Columbus, Ohio.

Research, Clinical and Technical Assistantships. State University of Iowa. Speech Clinic and Experimental Phonetics Laboratory. Starting September 1. Half-time; 20 hours per week. $720 to $900 for nine months; remission of tuition. Assistants allowed to carry 12 semester hours of course work. Applications for the 1952-53 academic year received until July 1, 1952. Address Wendell Johnson, Speech Clinic, State University of Iowa, Iowa City, Iowa.

Research Assistantships. University of Illinois. The Speech Research Laboratory, Department of Speech. Starting February, June, or September. Half-time; 20 hours per week of laboratory research assistance. $1200 for nine months, or $1465 for eleven months; remission of tuition. Student expected to enroll for three-fourths of normal graduate course load. Address Grant Fairbanks, 321 Illini Hall, University of Illinois, Urbana, Illinois.

Research Assistantships. Purdue University. The Voice Science Laboratory, Department of Speech. Starting February or September. Half-time; 20 hours per week of laboratory research assistance. $1200 for regular school year; waiver of tuition fees. Student may enroll for 10 semester hours of graduate courses. Address M. D. Steer, Voice Science Laboratory, Department of Speech, Purdue University, West Lafayette, Indiana.

Teaching Assistantship. Western Reserve University (Granted by the Cleveland Hearing and Speech Center). Winter and Spring Sessions; 9 hours of tuition exemption each session. $500 for five morning sessions weekly, teaching preschool deaf. Address Director of Admissions, Western Reserve University, 11124 Euclid Ave., Cleveland 6, Ohio.

Teaching Assistantships. Purdue University. Department of Speech. Starting February or September. Half-time; 8 hours per week of clinical work and 12 hours teaching duties in required beginning Speech course. $1200 for regular school year; waiver of tuition fees. Student may enroll for 10 semester hours of graduate courses. Address A. H. Monroe, Department of Speech, Purdue University, West Lafayette, Indiana.

Graduate Scholarships. Central Institute for the Deaf. Tuition scholarships for teacher training course in education of the deaf and hard of hearing, and in speech correction. Address Registrar, Central Institute for the Deaf, 818 South Kingshighway, St. Louis 10, Missouri.

Graduate Scholarships. Western Reserve University (Training at the Cleveland Hearing and Speech Center). Remission of full tuition. Applications received immediately. Address Director of Admissions, Western Reserve University, 11124 Euclid Ave., Cleveland 6, Ohio.

Graduate Scholarships. Awarded by the Speech Correction Fund for study at colleges or universities offering training beyond the Master's degree. $500 per year, beginning June or September; applicant must hold the Master's degree, or equivalent, in speech pathology or allied field. Address Mrs. Marceline Jaques, Scholarship Committee, Room 1020, 11 S. LaSalle St., Chicago 3, Ill.

Graduate Scholarships. Awarded for special study in cerebral palsy by Alpha Chi Omega and the National Society for Crippled Children and Adults. Grants vary between $100 and $750 for a minimum of three months at a recognized training center. Address National Personnel Registry and Employment Service, 11 S. LaSalle St., Chicago 3, Ill.

Graduate Scholarship. Kenfield Memorial Scholarship, awarded by the American Hearing Society to prospective teachers of lipreading to the hard of hearing. Available only to college graduates not already teachers of lipreading. Applications must be filed between March 1 and May 1. Address Miss Rose V. Feilbach, 1157 N. Columbus St., Arlington, Va.

Graduate Scholarship. Grants-in-aid awarded by the Audiology Foundation. $500 per year, for students entering into or already engaged in any branch of audiology, including otology, audiometry, speech, acoustics, and the education of the deaf or hard of hearing. Address The Audiology Foundation, 1104 S. Wabash Ave., Chicago 5, Ill.

Working Scholarships. Western Reserve University (Employment at the Cleveland Hearing and Speech Center). Remuneration and working time arranged according to demands for clinical service and needs of student. Address Director of Admissions, Western Reserve University, 11124 Euclid Ave., Cleveland 6, Ohio.

Fellowships. Central Institute for the Deaf. Fellowships in education of the deaf and hard of hearing, speech correction, audiology, acoustics, neuro-physiology, experimental otology. Stipends to be arranged according to background and needs of applicant. Address Registrar, Central Institute for the Deaf, 818 South Kingshighway, St. Louis 10, Missouri.

Fellowships. The Johns Hopkins University. Hearing and Speech Center. Two special fellowships in audiology and speech awarded annually; may be continued at discretion. $3100; no duties beyond satisfactory pursuit of graduate requirements. Applications considered at any time; awards made in June. Address William G. Hardy, Hearing and Speech Center, The Johns Hopkins Hospital, Baltimore 5, Maryland.

Fellowships. University of Wichita (Employment in the Institute of Logopedics). Eight service fellowships; duties primarily clinical. $200 to $250 per month; student is expected to pursue course work toward the M.A. degree. Address Martin F. Palmer, Institute of Logopedics, 2400 Jardine Drive, Wichita 14, Kansas.

Fellowship. State University of Iowa. Fellowship in audiology. Starting September 1. Half-time; 20 hours per week. $1000 for nine months; remission of tuition. Fellows allowed to carry 12 semester hours of course work. Applications for the 1952-53 academic year received until July 1, 1952. Address Wendell Johnson, Speech Clinic, State University of Iowa, Iowa City, Iowa.

Personals

Kenneth Stewart has taken a position as Director of the newly organized Health Acoustic Laboratory at the University of Pittsburgh Graduate School of Public Health. He has also been appointed as consultant to the Department of Audiology, University of Pittsburgh School of Medicine.

Miss Kathleen McKenny has been appointed clinical audiologist in the Department of Audiology, University of Pittsburgh School of Medicine. In addition to her clinical duties, she will assume responsibility for several of the preschool deaf child and parent classes at the Eye and Ear Hospital.

George W. Gens has accepted an appointment as Professor of Special Education and Director of the Curriculum for Handicapped Children at the Newark State Teachers College. Dr. Gens formerly was Speech Pathologist at the Vineland Training School.

Marjorie Cimmet Ackerman has accepted the position of speech therapist with the United Cerebral Palsy Association of Miami, Inc. Mrs. Ackerman was formerly with Dr. Carlson's School for Cerebral Palsied Children, Pompano Beach, Florida.

Robert F. Oxnam has been named to the newly created position of Dean of the School of Speech and Dramatic Arts at Syracuse University. Dr. Oxnam has been Acting Director of the school since 1950 when he filled a vacancy created by the retirement of Director Harry J. Heltman.

Loida Farrow has been appointed as Assistant Professor of Speech and Hearing at the College of the Pacific. Miss Farrow recently completed her graduate work at the State University of Iowa, where she has worked with the hard of hearing and the deaf.

William G. Hall and Mary M. Jaeger have recently become members of the Speech Clinic of the May T. Morrison Center for Rehabilitation, San Francisco.

Two new appointments have been made to the editorial staff of the *Journal of Speech and Hearing Disorders*. James F. Curtis, Ph.D., State University of Iowa, joins the group as the sixth associate editor.

Charles R. Elliott, M.A., Northwestern University, succeeds Miriam D. Pauls, Ph.D., The Johns Hopkins University, as assistant editor in charge of News and Announcements.

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INDEX TO VOLUME 16, 1951

Journal of Speech and Hearing Disorders

Abstracts (of current articles). 68-70, 183-198, 297-299, 383-389
American Speech and Hearing Association
  Convention
    Formal call for papers. 99
    Program. 211-212, 307-312
    Proposal for revision of the constitution of the American Speech and Hearing Association. 313-319
    Report of council and business meetings. 83-96
  Honors of the Association. Clarence T. Simon. 71-72
  Retiring president. Wendell Johnson. 73
American Speech and Hearing Association, The modern meaning of the. Editorial: G. Fairbanks) 100-102
Analysis of 500 cases of hearing disability, An (H. A. Newby and D. M. Molyneaux) 213-217
Analysis of the Utley lipreading test, An (L. M. DiCarlo and R. Kataja) 226-240
Aphasia, A bibliography on (R. R. Leutenegger) 280-292
Aphasia and dysarthria, Group speech therapy for motor (M. L. Corbin) 21-34
Artificial stutter (B. S. Lee) 53-55
Athetotic shoulder tremors, The remission of, through the use of non-musical sound stimuli (L. M. Schmeling) 264-272
Audiology, Otologic applications of (R. E. Jordan) 115-122
Audiometry, A preliminary investigation of the ear-choice technique in threshold (E. T. Curry and G. Kurtzrock) 340-345
Auditory communication (H. Davis) 3-8
Auditory training program, A clinical (A. F. Johnson and B. M. Siegenthaler) 35-39

Baker, E. E. and Sokoloff, M. Therapy for speech deficiencies resulting from acute bulbar poliomyelitis infection. 337-339
Baker, H. K. *See* McDonald, E. T.
Beasley, J. Development of social skills as an instrument in speech therapy. 241-245
Bibliography on aphasia, A (R. R. Leutenegger) 280-292
Birth, Type of, as related to stuttering (J. L. Boland, Jr.) 40-43
Black, J. W. The effect of delayed side-tone upon vocal rate and intensity. 56-60
Bloomer, H. and Shohara, H. Speech disorders among European military personnel in World War I: Part 1. 351-366
Boland, J. L., Jr. Type of birth as related to stuttering. 40-43
Book reviews. 65-67, 167-182, 293-296, 377-382
Bordley, J. E. *See* Hardy, W. G.
Broadus, R. N. Some sources of literature on speech disorders. 61-64
Brodnitz, F. S. Stuttering of different types in identical twins. 334-336

Cerebral palsied speech cases, Muscle training for (H. Westlake) 103-109
Cerebral palsy professional training activities in this country (M. F. Palmer) 157-158
Children, preschool, A consideration of thiamin supplement in prevention of stuttering in (L. L. Hale) 327-333
Special techniques in testing the hearing of (W. G. Hardy and J. E. Bordley) 123-131
Cleft palate speech: An integration of research and clinical observation (E. T. McDonald and H. K. Baker) 9-20
Clinical auditory training program, A (A. F. Johnson and B. M. Siegenthaler) 35-39
Communication, Auditory (H. Davis) 3-8
Consideration of thiamin supplement in prevention of stuttering in preschool children, A (L. L. Hale) 327-333
Consonantal position. Infant speech: (O. C. Irwin) 159-161

Continuously variable time delay of headset monitoring during magnetic recording of speech, A device for (G. Fairbanks and R. Jaeger) 162-164
Corbin, M. L. Group speech therapy for motor aphasia and dysarthria. 21-34
Curry, E. T. and Kurtzrock, G. A preliminary investigation of the ear-choice technique in threshold audiometry. 340-345

Davis, H. Auditory communication. 3-8
Delayed side-tone, The effect of, upon vocal rate and intensity (J. W. Black) 56-60
Development of social skills as an instrument in speech therapy (J. Beasley) 241-245
Device for continuously variable time delay of headset monitoring during magnetic recording of speech, A (G. Fairbanks and R. Jaeger) 162-164
DiCarlo, L. M. and Kataja, R. An analysis of the Utley lipreading test. 226-240
Doyne, M. P. and Steer, M. D. Studies in speech reception testing. 132-139
Duration characteristics, The pitch and, of superior female speakers during oral reading (J. C. Snidecor) 44-52
Dysarthria, Group speech therapy for motor aphasia and (M. L. Corbin) 21-34

Ear-choice technique in threshold audiometry, A preliminary investigation of the (E. T. Curry and G. Kurtzrock) 340-345
Editorial notes. 8, 100-102, 212
Effect of delayed side-tone upon vocal rate and intensity, The (J. W. Black), 56-60
Effect of speech training on silent reading achievement, The (M. V. Jones) 258-263
Employability of the hearing aid wearer, A survey of attitudes of local industry toward the (A. J. Van Deventer and J. A. Scanlon) 222-225
European military personnel in World War I, Speech disorders among: Part 1 (H. Bloomer and H. Shohara) 351-366
Evaluation of hearing aids worn by school children, An (C. H. Weaver) 218-221
Exploratory investigation of the self-concept of stutterers, An (F. E. Fiedler and J. M. Wepman) 110-114

Fairbanks, G. Editorial: The modern meaning of the American Speech and Hearing Association. 100-102
Fairbanks, G. and Jaeger, R. A device for continuously variable time delay of headset monitoring during magnetic recording of speech. 162-164
Fairbanks, G. and Lintner, M. V. H. A study of minor organic deviations in 'functional' disorders of articulation: 4. The teeth and hard palate. 273-279
Female speakers, The pitch and duration characteristics of superior, during oral reading (J. C. Snidecor) 44-52
Fiedler, F. E. and Wepman, J. M. An exploratory investigation of the self-concept of stutterers. 110-114
'Functional' disorders of articulation, A study of minor organic deviations in: 4. The teeth and hard palate (G. Fairbanks and M. V. H. Lintner) 273-279

Graduate theses in speech and hearing disorders—1950 (F. H. Knower) 367-374
Group speech therapy for motor aphasia and dysarthria (M. L. Corbin) 21-34

Hale, L. L. A consideration of thiamin supplement in prevention of stuttering in preschool children. 327-333
Hard palate, The teeth and. A study of minor organic deviations in 'functional' disorders of articulation: 4. (G. Fairbanks and M. V. H. Lintner) 273-279
Hardy, W. G. and Bordley, J. E. Special techniques in testing the hearing of children. 123-131
Headset monitoring during magnetic recording of speech, A device for continuously variable time delay of (G. Fairbanks and R. Jaeger) 162-164
Hearing aid wearer, A survey of attitudes of local industry toward the employability of the (A. J. Van Deventer and J. A. Scanlon) 222-225
Hearing aids worn by school children, An evaluation of (C. H. Weaver) 218-221
Hearing disability, An analysis of 500 cases of (H. A. Newby and D. M. Molyneaux) 213-217
Hearing of children, Special techniques in testing the (W. G. Hardy and J. E. Bordley) 123-131
Hearing units, Michigan's mobile (C. D. Osborn) 140-147

Infant speech: Consonantal position (O. C. Irwin) 159-161
Institute of Logopedics, The: Its physical plant (M. F. Palmer) 246-249
Intensity, vocal rate and, The effect of delayed side-tone upon (J. W. Black) 56-60
Irwin, O. C. Infant speech: Consonantal position. 159-161

Jaeger, R. *See* Fairbanks, G.
Johnson, A. F. and Siegenthaler, B. M. A clinical auditory training program. 35-39
Jones, M. V. The effect of speech training on silent reading achievement. 258-263
Jordan, R. E. Otologic applications of audiology. 115-122

Kataja, R. *See* DiCarlo, L. M.
Knower, F. H. Graduate theses in speech and hearing disorders—1950. 367-374
Kurtzrock, G. *See* Curry, E. T.

Lee, B. S. Artificial stutter. 53-55
Letters to the editor. 165-166, 375-376
Leutenegger, R. R. A bibliography on aphasia. 280-292
Lewis, D. and Sherman, D. Measuring the severity of stuttering. 320-326
Lintner, M. V. H. *See* Fairbanks, G.
Lipreading test, An analysis of the Utley (L. M. DiCarlo and R. Kataja) 226-240

McDonald, E. T. and Baker, H. K. Cleft palate speech: An integration of research and clinical observation. 9-20
Measuring the severity of stuttering (D. Lewis and D. Sherman) 320-326
Michigan's mobile hearing units (C. D. Osborn) 140-147
Mobile hearing units, Michigan's (C. D. Osborn) 140-147

Modern meaning of the American Speech and Hearing Association, The. Editorial: (G. Fairbanks) 100-102
Molyneaux, D. M. *See* Newby, H. A.
Muscle training for cerebral palsied speech cases (H. Westlake) 103-109

New England, A survey of services for the speech and hearing handicapped in (W. Pronovost) 148-156
Newby, H. A. and Molyneaux, D. M. An analysis of 500 cases of hearing disability. 213-217
News and announcements. 74-82, 199-208, 300-304, 390-395

Objective approach to the investigation of social adjustment of male stutterers, An (D. C. Spriestersbach) 250-257
Oral reading, The pitch and duration characteristics of superior female speakers during (J. C. Snidecor) 44-52
Osborn, C. D. Michigan's mobile hearing units. 140-147
Otologic applications of audiology (R. E. Jordan) 115-122

Palmer, M. F. Cerebral palsy professional training activities in this country. 157-158
Institute of Logopedics, The: Its physical plant. 246-249
Pitch and duration characteristics of superior female speakers during oral reading, The (J. C. Snidecor) 44-52
Poliomyelitis infection, acute bulbar, Therapy for speech deficiencies resulting from (E. E. Baker and M. Sokoloff) 337-339
Preliminary investigation of the ear-choice technique in threshold audiometry, A (E. T. Curry and G. Kurtzrock) 340-345
Professional training activities in this country, Cerebral palsy (M. F. Palmer) 157-158
Pronovost, W. A survey of services for the speech and hearing handicapped in New England. 148-156

Rate and intensity, vocal, The effect of delayed side-tone upon (J. W. Black) 56-60
Reading achievement, The effect of speech training on silent (M. V. Jones) 258-263
Recording of speech, A device for continuously variable time delay of headset monitoring during magnetic (G. Fairbanks and R. Jaeger) 162-164
Remission of athetotic shoulder tremors through the use of non-musical sound stimuli, The. (L. M. Schmeling) 264-272

Scanlon, J. A. *See* Van Deventer, A. J.
Schmeling, L. M. The remission of athetotic shoulder tremors through the use of non-musical sound stimuli. 264-272
School children, An evaluation of hearing aids worn by (C. H. Weaver), 218-221
Self-concept of stutterers, An exploratory investigation of the (F. E. Fiedler and J. M. Wepman) 110-114
Services for the speech and hearing handicapped in New England, A survey of (W. Pronovost) 148-156
Sherman, D. *See* Lewis, D.
Shohara, H. *See* Bloomer, H.
Siegenthaler, B. M. *See* Johnson, A. F.
Snidecor, J. C. The pitch and duration characteristics of superior female speakers during oral reading. 44-52
Social adjustment of male stutterers, An objective approach to the investigation of (D. C. Spriestersbach) 250-257
Social skills as an instrument in speech therapy, Development of (J. Beasley) 241-245
Sokoloff, M. *See* Baker, E. E.
Some sources of literature on speech disorders (R. Broadus) 61-64
Special techniques in testing the hearing of children (W. G. Hardy and J. E. Bordley) 123-131
Speech and hearing handicapped in New England, A survey of services for the (W. Pronovost) 148-156
Speech deficiencies resulting from acute bulbar poliomyelitis infection, Therapy for (E. E. Baker and M. Sokoloff) 337-339
Speech disorders, Some sources of literature on (R. N. Broadus) 61-64
Speech disorders among European military personnel in World War I: Part 1 (H. Bloomer and H. Shohara) 351-366
Speech in normal subjects, Time-patterns of. II (M. Verzeano) 346-350
Speech reception testing, Studies in (M. P. Doyne and M. D. Steer) 132-139
Speech therapy, Development of social skills as an instrument in (J. Beasley) 241-245
Speech training, The effect of, on silent reading achievement (M. V. Jones) 258-263
Spriestersbach, D. C. An objective approach to the investigation of social adjustment of male stutterers. 250-257
Steer, M. D. *See* Doyne, M. P.
Studies in speech reception testing (M. P. Doyne and M. D. Steer) 132-139
Study of minor organic deviations in 'functional' disorders of articulation, A: 4. The teeth and hard palate (G. Fairbanks and M. V. H. Lintner) 273-279
Stutter, Artificial (B. S. Lee) 53-55
Stutterers, An exploratory investigation of the self-concept of (F. E. Fiedler and J. M. Wepman) 110-114
objective approach to the investigation of social adjustment of male, An (D. C. Spriestersbach) 250-257
Stuttering, Measuring the severity of (D. Lewis and D. Sherman) 320-326
Type of birth as related to (J. L. Boland, Jr.) 40-43
Stuttering in preschool children, A consideration of thiamin supplement in prevention of (L. L. Hale) 327-333
Stuttering of different types in identical twins (F. S. Brodnitz) 334-336
Survey of attitudes of local industry toward the employability of the hearing aid wearer, A (A. J. Van Deventer and J. A. Scanlon) 222-225
Survey of services for the speech and hearing handicapped in New England, A (W. Pronovost) 148-156

Teeth and hard palate, The. A study of minor organic deviations in 'functional' disorders of articulation: 4. (G. Fairbanks and M. V. H. Lintner) 273-279
Test, An analysis of the Utley lipreading (L. M. DiCarlo and R. Kataja) 226-240
Testing, Studies in speech reception (M. P. Doyne and M. D. Steer) 132-139
Testing the hearing of children, Special techniques in (W. G. Hardy and J. E. Bordley) 123-131
Therapy for speech deficiencies resulting from acute bulbar poliomyelitis infection (E. E. Baker and M. Sokoloff) 337-339

Theses, Graduate, in speech and hearing disorders—1950 (F. H. Knower) 367-374
Thiamin supplement in prevention of stuttering in preschool children, A consideration of (L. L. Hale) 327-333
Time delay of headset monitoring during magnetic recording of speech, A device for continuously variable (G. Fairbanks and R. Jaeger) 162-164
Time-patterns of speech in normal subjects. II (M. Verzeano) 346-350
Twins, Stuttering of different types in identical (F. S. Brodnitz) 334-336
Type of birth as related to stuttering (J. L. Boland, Jr.) 40-43

Utley lipreading test, An analysis of the (L. M. DiCarlo and R. Kataja) 226-240

Van Deventer, A. J. and Scanlon, J. A. A survey of attitudes of local industry toward the employability of the hearing aid wearer. 222-225
Verzeano, M. Time-patterns of speech in normal subjects. II. 346-350

Weaver, C. H. An evaluation of hearing aids worn by school children. 218-221
Wepman, J. M. *See* Fiedler, F. E.
Westlake, H. Muscle training for cerebral palsied speech cases. 103-109
World War I, Speech disorders among European military personnel in: Part 1 (H. Bloomer and H. Shohara) 351-366

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